

LM-79-08 Test Report

For

Beyond LED Technology

LED UFO HIGHBAY

Model Name(s):

BLT-HBF(240/200/180)W-50K80LV-SWC

Representative (Tested) Model:

BLT-HBF(240/200/180)W-50K80LV-SWC

Model Difference:

1. **Product is Wattage Tunable Product, can be tunable from 180W, 200W and 240W;**
2. **XXK represents CCT, can be 40K for 4000K or 50K for 5000K;**
3. **Y represents Sensor, can be blank for no Sensor, SD for Daylight Sensor, SW for Microwave Motion Sensor, SWN for Networking Wireless Control version Microwave Motion Sensor, SP for PIR Sensor, SPN for Networking Wireless Control version PIR Sensor;**
4. **Z represents Commercial User, can be blank or any letter;**
5. **All is the same construction, except CCT, Function and model design.**

Prepared by:

Alan Wang

Engineer: Alan Wang

Date: 2022-12-19

Reviewed by:

Vincent Yuan

Technical Lead: Vincent Yuan

Issue Date: 2023-01-06

Revised Date: N/A

Note:

1. The results contained in this report pertain only to the tested samples.
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3. This report must not imply product certification, approval, or endorsement by NVLAP, or any agency of the Federal Government.

Client Information:

Applicant Name:	Beyond led Technology
Brand Name:	Beyond LED Technology

Product Information:

Model Number:	BLT-HBF(240/200/180)W-50K80LV-SWC
Product Type:	High Bay Luminaires for Commercial and Industrial Buildings
Rating Input:	120-347Vac, 50/60Hz, 240W/200W/180W
Declared CCT:	5000K
Declared Light Output:	36300 lm
LED Manufacturer:	Guangdong Elite Optoelectronic Technology Co., Ltd.
LED Model:	SMD2835
LED Quantity:	336 pcs
LED Driver Manufacturer:	Shenzhen Haisen Technology Co., Ltd
LED Driver Model:	ES-RNL240CY-1200XX-U0-07-P

Test Information:

Standard Lamp:	Total Spectral Radiant Flux Standard Lamp, trace to NIST. 1. D908S for Gonio 2. D215S for Integrating Sphere
Date of Receipt Samples:	2022-11-26
Quantity of Receipt Samples:	1 pc
Sample Number:	221126016-S1
Test Representation:	N/A

Laboratory Information:

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1 st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	Neil_zhong@ntc-cert.com

Report Information:

Test Report Form:	LM-79-08_TRF_V1.5
Issued Date of Test Report:	2023-01-06
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR2120153
Remark (If applicable):	N/A

Test Specification:	
Date of Test	2022-11-16
Test Item	<ol style="list-style-type: none"> 1. Total Luminous Flux 2. Luminous Distribution Intensity 3. Luminous Efficacy 4. Correlated Color Temperature 5. Color Rendering Index 6. Chromaticity Coordinate 7. Fidelity Index 8. Gamut Index 9. Local Chroma Shift 10. THD and PF
Reference Standard	IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products CIE 13.3-1995 Method of Measuring and Specifying Color Rendering Properties of Light Sources CIE 15-2004 Technical Report Colorimetry ANSI IES TM-30-18 IES Method for Evaluating Light Source Color Rendition IES TM-15-11 Luminaire Classification System for Outdoor Luminaires Addendum A for IES TM-15-11 Backlight, Uplight, and Glare (BUG) Ratings

Test Methods:
<p>1. Photometric and Electrical Measurements – Light Distribution Method:</p> <p>Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25 °C ± 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 required Voltage and Frequency. It was stabilized before measurement was made. Luminous Flux, Luminaire Efficacy and Zonal Lumen were calculated from the software taken at 1° vertical intervals and 15° horizontal intervals.</p>
<p>2. Photometric and Electrical Measurements – Integrating Sphere Method:</p> <p>Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at 25 °C± 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 require Voltage and Frequency. 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 1 nm intervals over the rage of 380 to 780 nm.</p>
<p>3. THD and PF Measurements:</p> <p>The sample was tested according to the ANSI C82.77, the sample was operated at requirement Voltage and Frequency, and was stabilized before measurement. The Total Harmonic Distortion was calculated from the Digital Power Meter.</p>

Integrating Sphere Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
25.4	41.0	Face Down	90	10

Electrical Data:

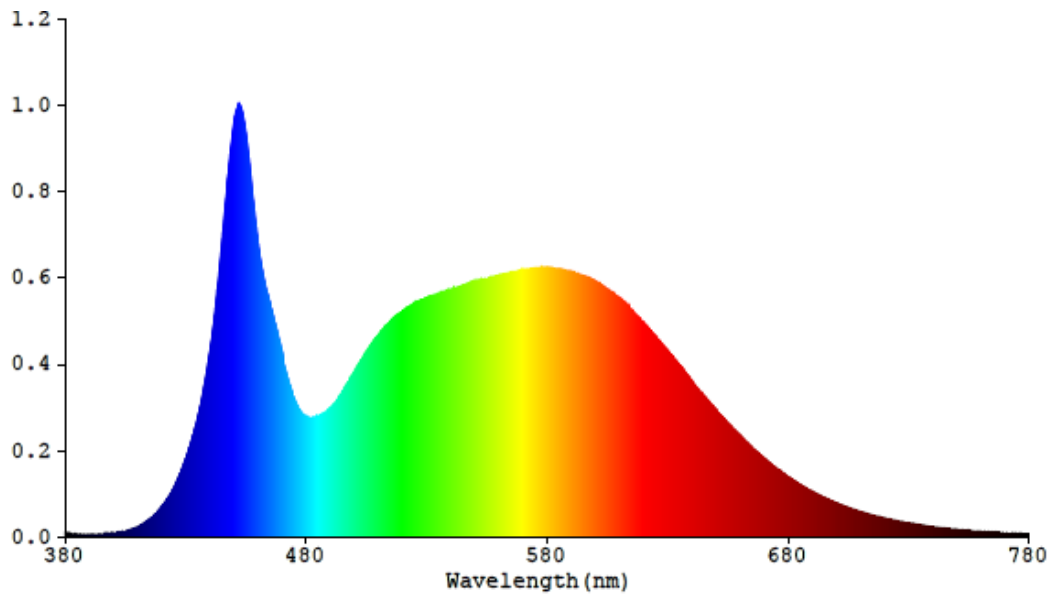
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	2.0264	242.73	0.9982

Color Data:

Parameter	Result
CCT(K)	5200
R _a	83.7
R _f	84
R _g	95
R _{cs, hl}	-12%
Chromaticity, (x, y)	(0.3404, 0.3533)
Chromaticity, (u', v')	(0.2076, 0.4848)
Duv	0.0028

Specify Color Rendering			
R1	82	R9	11
R2	88	R10	72
R3	93	R11	82
R4	83	R12	63
R5	83	R13	84
R6	84	R14	96
R7	88	R15	77
R8	69	-	-

Spectrum Diagram:

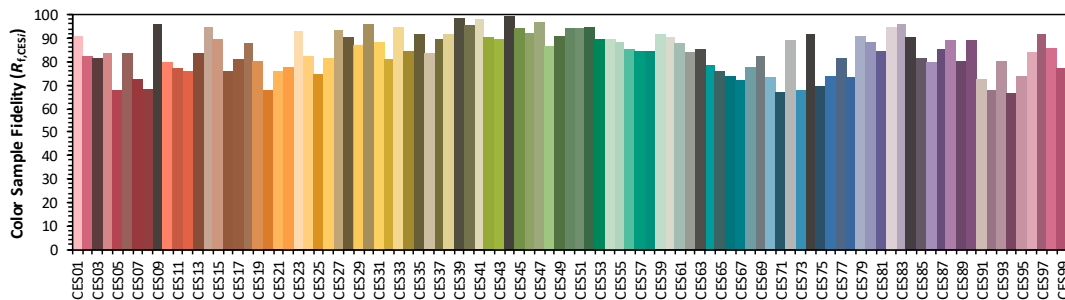
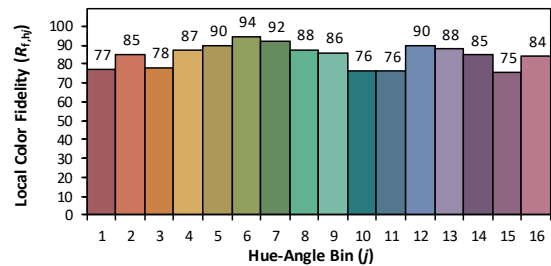
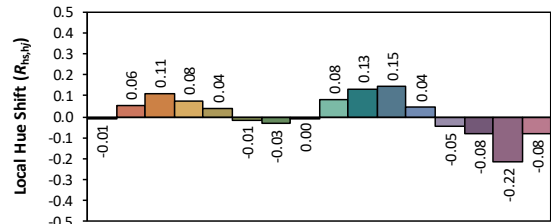
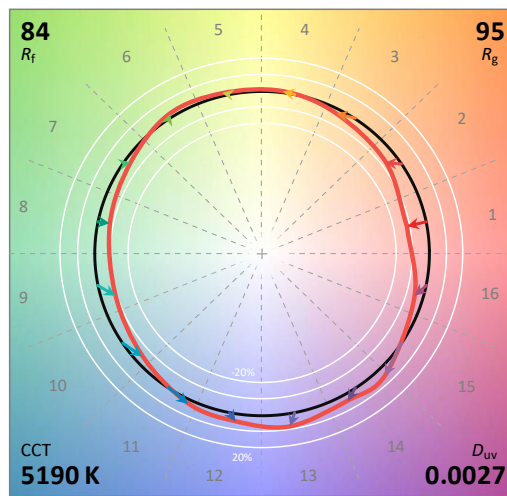
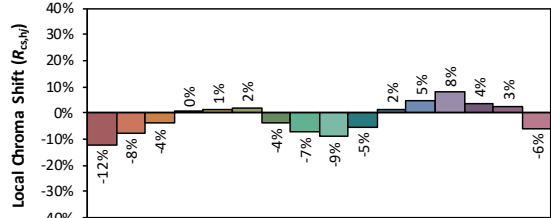
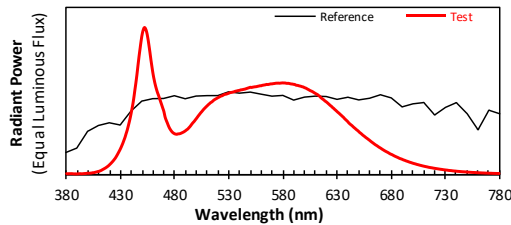


IES TM-30-18 Color Rendition Result:

ANSI/IES TM-30-18 Color Rendition Report

Source: 1 CIE F1
Date: 2022/12/19

Manufacturer: Beyond LED Technology
Model: BLT-HBF (240/200/180)W-50K80LV-SWC



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

x	0.3403	CIE 13.3-1995 (CRI) R_a 84 R_g 11
y	0.3531	
u'	0.2076	
v'	0.4847	

Spectrum Data:

nm	mW	nm	mW	nm	mW	nm	mW	nm	mW	nm	mW
380	0.0069	447	0.8041	514	0.4926	581	0.6227	648	0.3064	715	0.0498
381	0.0051	448	0.8600	515	0.4983	582	0.6229	649	0.3007	716	0.0485
382	0.0064	449	0.9142	516	0.5052	583	0.6212	650	0.2945	717	0.0471
383	0.0060	450	0.9587	517	0.5103	584	0.6202	651	0.2869	718	0.0461
384	0.0065	451	0.9862	518	0.5146	585	0.6206	652	0.2814	719	0.0445
385	0.0063	452	1.0000	519	0.5186	586	0.6192	653	0.2752	720	0.0432
386	0.0055	453	0.9913	520	0.5231	587	0.6173	654	0.2684	721	0.0420
387	0.0048	454	0.9695	521	0.5266	588	0.6160	655	0.2629	722	0.0408
388	0.0052	455	0.9332	522	0.5311	589	0.6154	656	0.2571	723	0.0397
389	0.0044	456	0.8860	523	0.5343	590	0.6134	657	0.2509	724	0.0385
390	0.0052	457	0.8343	524	0.5365	591	0.6129	658	0.2459	725	0.0373
391	0.0054	458	0.7793	525	0.5409	592	0.6086	659	0.2402	726	0.0362
392	0.0063	459	0.7289	526	0.5446	593	0.6070	660	0.2348	727	0.0353
393	0.0060	460	0.6820	527	0.5462	594	0.6060	661	0.2286	728	0.0340
394	0.0054	461	0.6439	528	0.5478	595	0.6035	662	0.2228	729	0.0329
395	0.0060	462	0.6105	529	0.5507	596	0.6018	663	0.2174	730	0.0320
396	0.0068	463	0.5832	530	0.5533	597	0.5997	664	0.2119	731	0.0311
397	0.0075	464	0.5586	531	0.5568	598	0.5971	665	0.2063	732	0.0304
398	0.0077	465	0.5390	532	0.5581	599	0.5955	666	0.2012	733	0.0291
399	0.0093	466	0.5163	533	0.5595	600	0.5911	667	0.1968	734	0.0282
400	0.0089	467	0.4946	534	0.5614	601	0.5889	668	0.1916	735	0.0276
401	0.0092	468	0.4728	535	0.5635	602	0.5849	669	0.1864	736	0.0269
402	0.0102	469	0.4504	536	0.5665	603	0.5807	670	0.1821	737	0.0258
403	0.0107	470	0.4283	537	0.5679	604	0.5769	671	0.1774	738	0.0249
404	0.0127	471	0.3937	538	0.5699	605	0.5723	672	0.1723	739	0.0243
405	0.0130	472	0.3718	539	0.5716	606	0.5689	673	0.1678	740	0.0237
406	0.0149	473	0.3539	540	0.5728	607	0.5658	674	0.1632	741	0.0228
407	0.0168	474	0.3351	541	0.5758	608	0.5615	675	0.1590	742	0.0221
408	0.0188	475	0.3184	542	0.5766	609	0.5567	676	0.1550	743	0.0216
409	0.0206	476	0.3059	543	0.5781	610	0.5523	677	0.1513	744	0.0209
410	0.0226	477	0.2953	544	0.5798	611	0.5479	678	0.1470	745	0.0202
411	0.0255	478	0.2870	545	0.5813	612	0.5443	679	0.1423	746	0.0196
412	0.0286	479	0.2815	546	0.5839	613	0.5380	680	0.1387	747	0.0191
413	0.0330	480	0.2772	547	0.5864	614	0.5330	681	0.1358	748	0.0188
414	0.0370	481	0.2752	548	0.5890	615	0.5247	682	0.1317	749	0.0183
415	0.0413	482	0.2743	549	0.5913	616	0.5184	683	0.1277	750	0.0175
416	0.0455	483	0.2767	550	0.5937	617	0.5128	684	0.1241	751	0.0170
417	0.0507	484	0.2772	551	0.5923	618	0.5075	685	0.1208	752	0.0165
418	0.0561	485	0.2789	552	0.5941	619	0.5005	686	0.1175	753	0.0160
419	0.0622	486	0.2818	553	0.5953	620	0.4957	687	0.1142	754	0.0156
420	0.0695	487	0.2854	554	0.5968	621	0.4897	688	0.1103	755	0.0150
421	0.0766	488	0.2888	555	0.5973	622	0.4831	689	0.1078	756	0.0146
422	0.0847	489	0.2934	556	0.5988	623	0.4764	690	0.1053	757	0.0143
423	0.0928	490	0.2984	557	0.6007	624	0.4696	691	0.1018	758	0.0140
424	0.1023	491	0.3045	558	0.6021	625	0.4640	692	0.0989	759	0.0134
425	0.1118	492	0.3095	559	0.6041	626	0.4562	693	0.0964	760	0.0130
426	0.1237	493	0.3176	560	0.6039	627	0.4506	694	0.0932	761	0.0125
427	0.1366	494	0.3255	561	0.6070	628	0.4431	695	0.0908	762	0.0123
428	0.1503	495	0.3350	562	0.6081	629	0.4369	696	0.0883	763	0.0119
429	0.1642	496	0.3450	563	0.6095	630	0.4299	697	0.0854	764	0.0115
430	0.1791	497	0.3539	564	0.6107	631	0.4232	698	0.0831	765	0.0112
431	0.1959	498	0.3618	565	0.6131	632	0.4173	699	0.0807	766	0.0110
432	0.2135	499	0.3716	566	0.6123	633	0.4101	700	0.0782	767	0.0104
433	0.2335	500	0.3809	567	0.6134	634	0.4038	701	0.0759	768	0.0102
434	0.2535	501	0.3909	568	0.6153	635	0.3965	702	0.0739	769	0.0100
435	0.2781	502	0.4009	569	0.6167	636	0.3903	703	0.0719	770	0.0097
436	0.3015	503	0.4102	570	0.6168	637	0.3818	704	0.0694	771	0.0094
437	0.3300	504	0.4198	571	0.6183	638	0.3746	705	0.0676	772	0.0092
438	0.3600	505	0.4280	572	0.6190	639	0.3678	706	0.0656	773	0.0091
439	0.3923	506	0.4371	573	0.6205	640	0.3607	707	0.0635	774	0.0085
440	0.4298	507	0.4457	574	0.6214	641	0.3518	708	0.0618	775	0.0084
441	0.4686	508	0.4530	575	0.6215	642	0.3448	709	0.0598	776	0.0081
442	0.5135	509	0.4607	576	0.6219	643	0.3387	710	0.0581	777	0.0080
443	0.5679	510	0.4675	577	0.6210	644	0.3330	711	0.0564	778	0.0078
444	0.6205	511	0.4751	578	0.6222	645	0.3258	712	0.0547	779	0.0076
445	0.6780	512	0.4811	579	0.6228	646	0.3192	713	0.0532	780	0.0076
446	0.7420	513	0.4882	580	0.6235	647	0.3132	714	0.0516	N/A	N/A

Goniophotometer Test Results:

Test Condition:

Test Ambient (°C)	Test Humidity (%)	Orientation	Stabilization Time (minute)	Test Time (minute)
24.8	42.9	Face Down	90	25

Electrical Data:

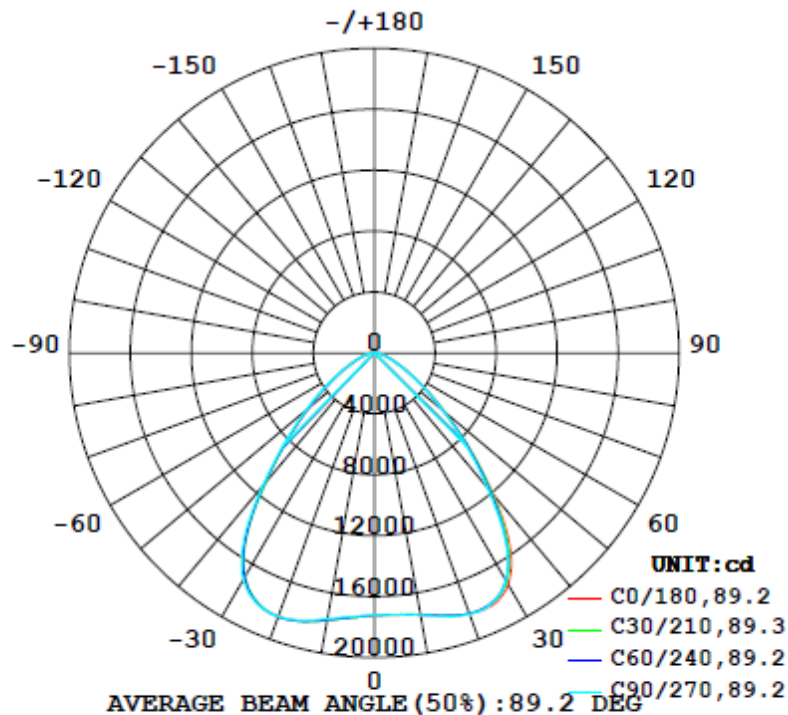
Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor
120.0	60	2.0264	242.73	0.9982

Goniophotometer Data:

Parameter	Results	
Total Luminous (lm)	37076.0	
Luminous Efficacy (lm/W)	152.75	
Zonal Lumens Distribution (20-50°)	64.9%	
Beam Angle (°)	89.2	
UGR	Viewed Crosswise	Viewed Endwise
	26.3	26.0

Luminous Intensity Distribution Diagram:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

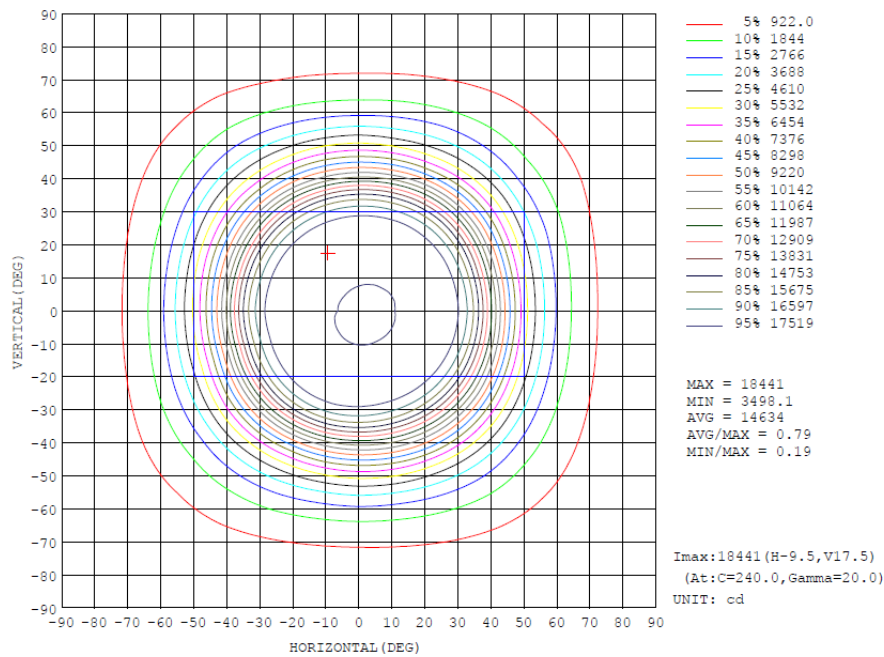


Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	φ zone	φ total	%lum, lamp
10	1747	1745	1749	1760	1778	1783	1770	1754	0- 10	1662	1662	4.48,4.48
20	1823	1818	1826	1832	1843	1842	1842	1832	10- 20	5114	6776	18.3,18.3
30	1758	1730	1725	1717	1709	1698	1721	1742	20- 30	8335	15111	40.8,40.8
40	1217	1195	1154	1132	1119	1115	1141	1206	30- 40	9219	24330	65.6,65.6
50	602.9	598.6	586.0	554.5	566.9	564.7	585.0	592.0	40- 50	6502	30832	83.2,83.2
60	270.3	266.4	260.5	244.7	256.4	258.1	256.1	263.0	50- 60	3574	34406	92.8,92.8
70	111.9	111.0	106.2	103.4	106.9	107.9	108.7	111.7	60- 70	1703	36109	97.4,97.4
80	41.36	41.05	37.69	37.21	38.90	40.91	41.56	42.67	70- 80	751.3	36861	99.4,99.4
90	0.7324	0.6830	0.0857	0.0721	0.1136	0.1132	0.1101	0.1083	80- 90	172.5	37033	99.9,99.9
100	0.0952	0.0948	0.0967	0.0992	0.1879	0.1851	0.1809	0.1745	90-100	1.290	37034	99.9,99.9
110	0.1527	0.1537	0.1618	0.1681	0.2903	0.2911	0.2872	0.2749	100-110	1.885	37036	99.9,99.9
120	0.2970	0.2914	0.3108	0.3235	0.5584	0.5564	0.5480	0.5304	110-120	3.020	37039	99.9,99.9
130	0.5271	0.5266	0.5550	0.5610	1.006	1.058	1.093	1.004	120-130	5.359	37045	99.9,99.9
140	0.8221	0.8435	0.8625	0.8523	1.376	1.495	1.523	1.451	130-140	7.543	37052	99.9,99.9
150	1.116	1.171	1.195	1.155	1.775	1.890	1.953	1.892	140-150	8.341	37061	100,100
160	1.513	1.509	1.403	1.506	2.269	2.314	2.267	2.239	150-160	7.868	37068	100,100
170	1.779	1.846	1.700	1.731	2.380	2.411	2.314	2.257	160-170	5.619	37074	100,100
180	2.289	2.316	2.144	2.139	2.241	2.310	2.183	2.114	170-180	2.010	37076	100,100
DEG	LUMINOUS INTENSITY: *10cd									UNIT: lm		

Isocandela Diagram:



Uncorrected UGR Table:

UGR Table - Uncorrected

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	11.9	13.2	12.2	13.5	13.9	11.6	12.9	12.0	13.2	13.6
	3H	12.6	13.8	13.0	14.2	14.5	12.3	13.5	12.7	13.8	14.2
	4H	12.9	14.0	13.3	14.4	14.7	12.6	13.7	13.0	14.0	14.4
	6H	13.1	14.1	13.5	14.5	14.9	12.7	13.8	13.1	14.1	14.5
	8H	13.1	14.1	13.5	14.5	14.9	12.8	13.7	13.2	14.1	14.5
	12H	13.1	14.1	13.6	14.4	14.9	12.8	13.7	13.2	14.1	14.5
4H	2H	12.1	13.2	12.5	13.6	13.9	11.8	12.9	12.2	13.3	13.7
	3H	13.0	13.9	13.4	14.3	14.7	12.7	13.6	13.1	14.0	14.4
	4H	13.4	14.2	13.8	14.6	15.1	13.0	13.9	13.5	14.3	14.7
	6H	13.6	14.4	14.1	14.8	15.3	13.3	14.0	13.8	14.5	14.9
	8H	13.7	14.4	14.2	14.8	15.3	13.4	14.0	13.9	14.5	15.0
	12H	13.7	14.3	14.2	14.8	15.3	13.4	14.0	13.9	14.5	14.9
8H	4H	13.5	14.1	13.9	14.6	15.0	13.1	13.8	13.6	14.3	14.7
	6H	13.8	14.4	14.3	14.9	15.3	13.5	14.0	14.0	14.5	15.0
	8H	13.9	14.4	14.5	14.9	15.4	13.6	14.1	14.1	14.6	15.1
	12H	14.0	14.4	14.5	14.9	15.5	13.6	14.1	14.1	14.6	15.1
12H	4H	13.4	14.0	13.9	14.5	15.0	13.1	13.7	13.6	14.2	14.7
	6H	13.8	14.3	14.4	14.8	15.3	13.5	14.0	14.0	14.4	15.0
	8H	13.9	14.4	14.5	14.9	15.5	13.6	14.0	14.1	14.5	15.1

Maximum UGR = 15.5

Corrected UGR Table:

UGR Table - Corrected

Reflectances		70	70	50	50	30	70	70	50	50	30
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	24.5	25.8	24.8	26.1	26.5	24.2	25.5	24.6	25.8	26.2
	3H	25.2	26.4	25.6	26.8	27.1	24.9	26.1	25.3	26.4	26.8
	4H	25.5	26.6	25.9	27.0	27.3	25.2	26.3	25.6	26.6	27.0
	6H	25.7	26.7	26.1	27.1	27.5	25.3	26.4	25.7	26.7	27.1
	8H	25.7	26.7	26.1	27.1	27.5	25.4	26.3	25.8	26.7	27.1
	12H	25.7	26.7	26.2	27.0	27.5	25.4	26.3	25.8	26.7	27.1
4H	2H	24.7	25.8	25.1	26.2	26.5	24.4	25.5	24.8	25.9	26.3
	3H	25.6	26.5	26.0	26.9	27.3	25.3	26.2	25.7	26.6	27.0
	4H	26.0	26.8	26.4	27.2	27.7	25.6	26.5	26.1	26.9	27.3
	6H	26.2	27.0	26.7	27.4	27.9	25.9	26.6	26.4	27.1	27.5
	8H	26.3	27.0	26.8	27.4	27.9	26.0	26.6	26.5	27.1	27.6
	12H	26.3	26.9	26.8	27.4	27.9	26.0	26.6	26.5	27.1	27.5
8H	4H	26.1	26.7	26.5	27.2	27.6	25.7	26.4	26.2	26.9	27.3
	6H	26.4	27.0	26.9	27.5	27.9	26.1	26.6	26.6	27.1	27.6
	8H	26.5	27.0	27.1	27.5	28.0	26.2	26.7	26.7	27.2	27.7
	12H	26.6	27.0	27.1	27.5	28.1	26.2	26.7	26.7	27.2	27.7
12H	4H	26.0	26.6	26.5	27.1	27.6	25.7	26.3	26.2	26.8	27.3
	6H	26.4	26.9	27.0	27.4	27.9	26.1	26.6	26.6	27.0	27.6
	8H	26.5	27.0	27.1	27.5	28.1	26.2	26.6	26.7	27.1	27.7

Maximum UGR = 28.1

Luminous Distribution Intensity Data:

Table--1 UNIT: *10cd

C (DEG) y (DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1726	1726	1723	1724	1722	1723	1720	1720	1720	1721	1719	1719	1726	1726	1723	1724	1722	1723	1720
5	1728	1726	1724	1723	1724	1725	1724	1728	1727	1731	1733	1735	1745	1744	1745	1743	1742	1741	1738
10	1747	1744	1745	1745	1746	1747	1749	1752	1755	1760	1765	1770	1778	1781	1782	1783	1780	1777	1770
15	1784	1783	1782	1784	1787	1790	1790	1794	1799	1802	1808	1813	1820	1825	1824	1826	1824	1822	1816
20	1823	1821	1819	1818	1819	1822	1826	1830	1831	1832	1835	1836	1843	1841	1842	1842	1844	1842	1842
25	1828	1824	1818	1812	1812	1813	1817	1819	1820	1815	1811	1809	1814	1812	1811	1811	1812	1814	1820
30	1758	1748	1739	1730	1726	1722	1725	1727	1724	1717	1706	1695	1709	1699	1697	1698	1702	1711	1721
35	1552	1545	1530	1517	1507	1500	1497	1502	1495	1488	1472	1454	1475	1464	1459	1461	1468	1480	1493
40	1217	1214	1209	1195	1182	1168	1154	1147	1141	1132	1118	1099	1119	1109	1107	1115	1122	1128	1141
45	878	880	879	872	867	856	842	827	809	812	806	787	807	811	809	804	809	822	831
50	603	600	605	599	590	593	586	571	561	554	558	547	567	572	570	565	566	580	585
55	408	404	402	400	398	398	397	384	379	373	370	377	388	385	386	387	386	390	398
60	270	263	262	266	263	260	260	253	252	245	240	251	256	251	250	258	258	257	256
65	175	170	167	171	170	167	165	164	163	157	154	165	166	160	161	167	167	167	166
70	112	110	109	111	111	110	106	105	105	103	100.0	106	107	105	104	108	108	109	109
75	72.9	71.0	71.4	71.9	71.4	69.8	67.5	67.5	67.0	66.6	63.4	66.3	68.3	67.2	68.1	69.1	70.2	69.4	70.3
80	41.4	43.3	41.0	41.0	41.9	40.1	37.7	39.0	38.7	37.2	35.9	39.1	38.9	39.1	40.7	40.9	41.0	40.3	41.6
85	14.1	14.5	14.6	14.0	13.8	13.1	13.1	12.0	11.9	11.6	11.4	11.2	12.3	12.9	13.1	13.6	13.6	13.8	14.0
90	0.73	0.78	0.78	0.68	0.60	0.54	0.09	0.07	0.07	0.07	0.07	0.07	0.08	0.11	0.11	0.11	0.11	0.11	0.11
95	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.14	0.14	0.14	0.14	0.14	0.14
100	0.10	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.19	0.19	0.19	0.19	0.18	0.18
105	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.13	0.13	0.13	0.13	0.13	0.24	0.24	0.24	0.24	0.24	0.23
110	0.15	0.15	0.15	0.15	0.16	0.16	0.16	0.16	0.17	0.17	0.17	0.17	0.16	0.29	0.29	0.29	0.29	0.29	0.29
115	0.21	0.21	0.20	0.21	0.21	0.22	0.22	0.23	0.23	0.23	0.23	0.23	0.22	0.38	0.38	0.38	0.38	0.38	0.38
120	0.30	0.29	0.28	0.29	0.30	0.30	0.31	0.32	0.32	0.32	0.32	0.32	0.31	0.56	0.56	0.56	0.56	0.55	0.55
125	0.41	0.40	0.39	0.40	0.42	0.41	0.42	0.43	0.43	0.44	0.43	0.43	0.42	0.78	0.79	0.78	0.80	0.80	0.80
130	0.53	0.52	0.53	0.53	0.56	0.54	0.56	0.56	0.57	0.56	0.57	0.55	1.01	1.02	1.03	1.06	1.08	1.09	1.09
135	0.68	0.68	0.69	0.67	0.70	0.71	0.71	0.72	0.71	0.70	0.70	0.70	1.20	1.23	1.25	1.28	1.32	1.35	1.35
140	0.82	0.84	0.84	0.84	0.86	0.88	0.86	0.86	0.86	0.85	0.82	0.84	1.38	1.39	1.42	1.49	1.53	1.54	1.52
145	0.97	1.00	0.99	0.99	1.04	1.05	1.04	1.04	1.02	0.99	0.95	0.97	1.58	1.61	1.62	1.69	1.75	1.75	1.73
150	1.12	1.18	1.20	1.17	1.18	1.21	1.20	1.20	1.16	1.16	1.09	1.11	1.77	1.79	1.80	1.89	1.93	1.97	1.95
155	1.31	1.39	1.42	1.33	1.34	1.39	1.34	1.36	1.34	1.32	1.36	1.28	2.00	1.98	2.07	2.09	2.12	2.15	2.13
160	1.51	1.57	1.57	1.51	1.48	1.48	1.40	1.49	1.48	1.51	1.50	1.49	2.27	2.25	2.27	2.31	2.29	2.31	2.27
165	1.64	1.71	1.72	1.71	1.65	1.62	1.56	1.62	1.65	1.66	1.63	1.65	2.34	2.34	2.36	2.39	2.42	2.38	2.34
170	1.78	1.85	1.86	1.85	1.74	1.73	1.70	1.69	1.72	1.73	1.74	1.76	2.38	2.38	2.39	2.41	2.42	2.40	2.31
175	2.03	2.09	2.09	2.08	1.99	1.95	1.88	1.91	1.94	1.95	1.96	2.01	2.36	2.36	2.40	2.40	2.37	2.35	2.28
180	2.29	2.32	2.33	2.32	2.15	2.19	2.14	2.08	2.13	2.14	2.15	2.21	2.24	2.24	2.30	2.31	2.29	2.24	2.18

Table--2 UNIT: *10cd

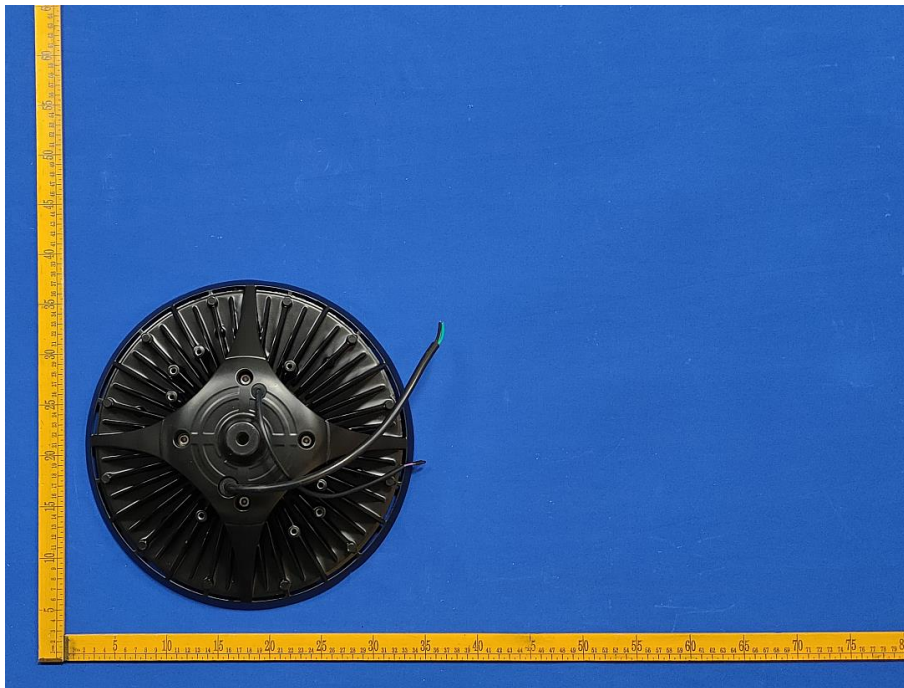
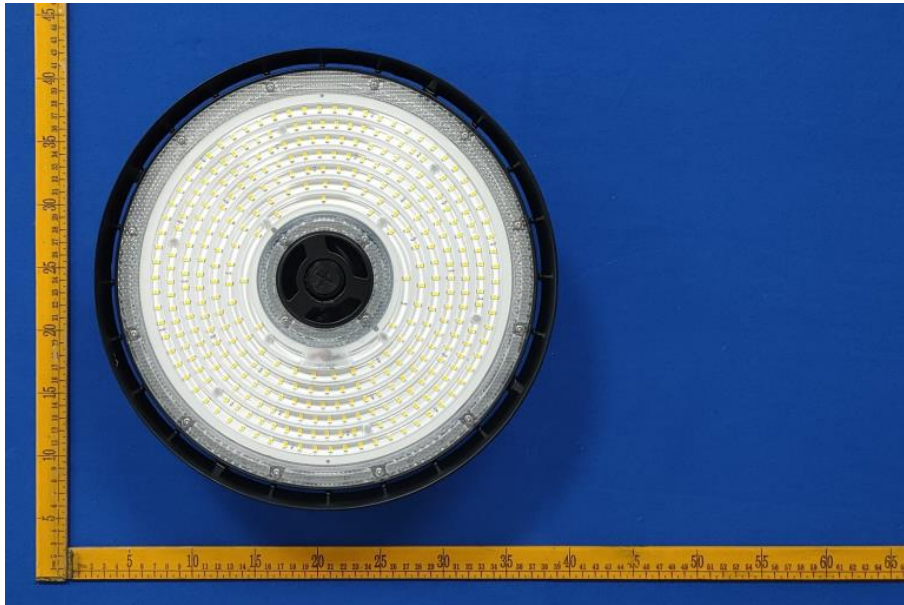
C (DEG) y (DEG)	285	300	315	330	345														
0	1720	1720	1721	1719	1719														
5	1734	1729	1729	1725	1722														
10	1765	1760	1754	1747	1743														
15	1810	1804	1795	1788	1785														
20	1839	1834	1832	1828	1825														
25	1821	1823	1823	1826	1828														
30	1727	1736	1742	1747	1749														
35	1512	1528	1541	1548	1546														
40	1164	1190	1206	1213	1208														
45	839	846	864	877	870														
50	581	582	592	606	604														
55	393	397	398	404	408														
60	263	267	263	259	275														
65	172	172	172	169	180														
70	111	111	112	109	118														
75	72.2	72.1	71.5	70.9	75.7														
80	41.0	41.9	42.7	41.5	43.2														
85	14.6	14.8	15.4	15.4	16.1														
90	0.11	0.11	0.11	0.11	0.11														
95	0.14	0.14	0.13	0.13	0.13														
100	0.18	0.18	0.17	0.17	0.18														
105	0.23	0.23	0.22	0.23	0.22														
110	0.28	0.28	0.27	0.27	0.27														
115	0.38	0.37	0.37	0.36	0.35														
120	0.54	0.53	0.53	0.52	0.52														
125	0.79	0.78	0.76	0.74	0.73														
130	1.07	1.05	1.00	0.99	0.96														
135	1.31	1.26	1.24	1.22	1.19														
140	1.48	1.46	1.45	1.42	1.39														
145	1.69	1.70	1.67	1.61	1.61														
150	1.94	1.90	1.89	1.83	1.80														
155	2.14	2.10	2.07	2.10	2.04														
160	2.25	2.28	2.24	2.29	2.24														
165	2.32	2.34	2.32	2.34	2.33														
170	2.31	2.31	2.26	2.30	2.33														
175	2.21	2.25	2.20	2.27	2.27														
180	2.17	2.09	2.11	2.13	2.14														

THD and PF Measurement Test Results:

Electrical Measurement:

Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)
120.0	60	2.0264	242.73	0.9982	4.72
277.0	60	0.8999	240.53	0.9649	7.99
347.0	60	0.7398	239.76	0.9340	8.21

Photo of Sample:



Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2022-11-09	2023-11-08
NTC-F01-006	2.0 meter Integrating Sphere	2022-11-09	2023-11-08
NTC-F01-012	Standard Lamp	2022-11-09	2023-11-08
NTC-F01-013	Standard Lamp	2022-11-09	2023-11-08
NTC-F01-031	Digital Power Meter	2022-08-31	2023-08-30
NTC-F01-020	Temperature & Humidity Meter	2022-11-12	2023-11-11

*******End of Report*******