



Report No: NTCLR19080076 Report Version: V1.3

LM-79-08 Test Report

For

ETI Solid State Lighting (Zhuhai) Ltd

No.1, Zhongzhu Road South, Science & Technology Innovation Coast, High Tech District, Zhuhai City, Guangdong Prov., China

High Bay

Model Name(s): 502401##

Representative (Tested) Model: 50240161

Model Difference: ##=61-70, identifies 5000K

Prepare by:

Perele Lai

Engineer: Derek Lai Date: 2019-08-20

Review by:

incer Twen

Technical Lead: Vincent Yuan Issue Date: 2019-08-23 Revised Date: N/A

Note:

1. The results contained in this report pertain only to the tested samples.

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Product Information:

Client Name:	ETI Solid State Lighting (Zhuhai) Ltd
Brand Name:	ETI
Model Number:	502401##(##=61-70)
Product Type:	High Bay Luminaires for Commercial and Industrial Buildings
Rating Input:	120-277Vac, 50/60Hz, 92W
Declared CCT:	5000 K
Declared Light Output:	12000 lm
LED Manufacturer:	Samsung
LED Model:	SPMWH1228FD5WARMXX
LED Quantity:	360 pcs
Driver Manufacturer:	ECU ELECTRONICS INDUSTRIAL CO., LTD
Driver Model:	YX-100-520mA

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:	2019-07-23
Quantity of Receipt Samples:	1 pcs
Sample Number:	190723001-S1

Laboratory Information:

Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park,
	Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	Neil_ntc@163.com
Report Information:	
Issued Date of Test Report:	2019-08-23
Revised Date of Test Report:	N/A
Test Report No.:	NTCLR19080076
Remark (If applicable):	N/A





Test Specification:

Test Specification.	
Date of Test	2019-07-26
Test Item	1. Total Luminous Flux
	2. Luminous Distribution Intensity
	3. Luminous Efficacy
	4. Correlated Color Temperature
	5. Color Rendering Index
	6. Chromaticity Coordinate
	7. 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

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 °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 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° horizonal intervals.

2. Photometric and Electrical Measurements – Integrating Sphere Method:

Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at 25 °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 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.

3. THD and PF Measurements:

The sample was tested according to the ANSI C82.77-2002, 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.





Integrating Sphere Test Results:

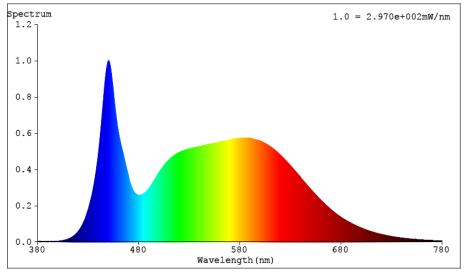
Test Con	dition:						
Test Ambient (°C)	Test Humidity (%)	Orientation	Stabi	lization Time (minute)	Test Time (minute)		
25.4	41.3	Face Down		90	10		
Electrica	l Data:						
Voltage (V)	Frequency (Hz)	Current (A	A)	Wattage (W)	Power Factor		
120.0	60	0.7894		94.24	0.9949		

Color Data:

Parameter	Result
CCT(K)	5257
Ra	86.3
R9	25
Chromaticity, x	0.3382
Chromaticity, y	0.3457
Chromaticity, u'	0.2090
Chromaticity, v'	0.4807
Duv	-0.000145

	Special Color Rendering									
R 1	R1 86 R9 25									
R2	90	R10	76							
R3	93	R11	87							
R4	87	R12	68							
R5	87	R13	87							
R6	86	R14	96							
R 7	89	R15	82							
R8	73	-	-							

Spectrum Diagram:







Goniophotemeter Test Results:

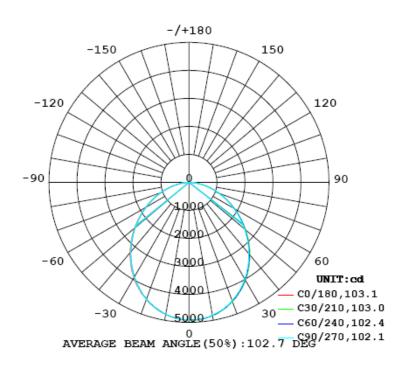
Test Con	dition:				
Test Ambient (°C)	Test Humidity (%)	Orientatio	n Stabi	ilization Time (minute)	Test Time (minute)
25.4	41.3	Face Down	90		25
Electrica	l Data:				
Voltage (V)	Frequency (Hz)	Curre	ent (A)	Wattage (W)	Power Factor
120.0	60	0.7	94.24		0.9949
Gonioph	otometer Data:				
	Parameter			Results	
	Total Lu	minous (lm)		12712.9	
	Luminous Effi	cacy (lm/w)		134.90	
Zo	nal Lumens Distribut	ion (20-50°)		51.1%	

Luminous Intensity Distribution Diagram:

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM

102.7

Beam Angle (°)





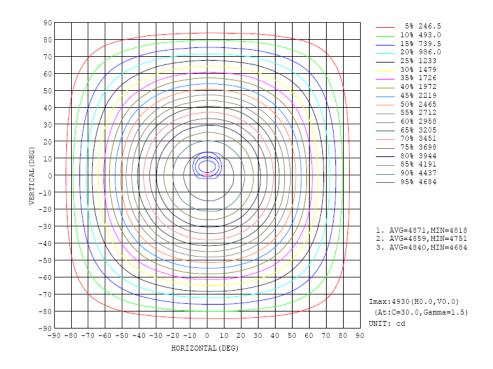
NVLAP LAB CODE 600150-0

Zonal Flux Diagram:

ZONAL FLUX DIAGRAM:

γ	C0	C45	C90	C135	C180	C225	C270	C315	Ÿ	zone	<pre> total </pre>	%lum,lam
10	4826	4834	4831	4801	4799	4776	4792	4816	0- 10	464.1	464.1	3.65,3.65
20	4531	4537	4486	4466	4454	4429	4443	4482	10- 20	1316	1780	14,14
30	4029	4028	3979	3956	3937	3904	3912	3970	20- 30	1953	3733	29.4,29.
40	3368	3388	3313	3287	3278	3235	3242	3312	30- 40	2279	6012	47.3,47.3
50	2633	2640	2585	2550	2542	2501	2506	2562	40- 50	2266	8277	65.1,65.3
60	1866	1891	1833	1818	1794	1746	1772	1813	50- 60	1956	10234	80.5,80.
70	1131	1165	1124	1104	1074	1052	1071	1100	60- 70	1440	11674	91.8,91.
80	474.2	515.8	496.8	471.2	427.5	431.6	457.9	470.7	70- 80	820.8	12494	98.3,98.
90	3.163	0.2096	0.2203	0.2204	0.6823	0.7117	0.6886	0.7061	80- 90	207.8	12702	99.9,99.
100	0.5075	0.4647	0.4710	0.5044	1.191	1.224	1.190	1.174	90-100	0.6998	12703	99.9,99.
110	0.7378	0.6166	0.7195	0.7172	1.396	1.380	1.443	1.352	100-110	1.016	12704	99.9,99.
120	1.138	0.9621	1.035	1.096	1.656	1.576	1.573	1.504	110-120	1.168	12705	99.9,99.
130	1.610	1.830	1.502	1.975	2.254	2.610	2.267	2.422	120-130	1.468	12706	99.9,99.
140	1.971	2.144	2.467	2.240	2.775	3.220	3.360	3.050	130-140	1.825	12708	100,100
150	2.246	2.240	2.476	2.447	3.364	3.720	3.857	3.710	140-150	1.768	12710	100,100
160	2.672	2.669	2.304	2.789	4.004	4.183	3.963	4.107	150-160	1.468	12712	100,100
170	3.071	3.073	2.928	3.053	3.898	4.143	4.091	4.014	160-170	0.9736	12713	100,100
180	3.590	3.659	3.570	3.562	3.592	3.666	3.580	3.569	170-180	0.3381	12713	100,100
DEG		LUN	INOUS INTE	NSITY:cd	Less than	35% Percen	t = 14.0 %			UNI	F:lm	

Isocandela Diagram:







Luminous Distribution Intensity Data:

Table1																UNI	T: cd		
C (DEG)	0	15	30	45	60	75	90		120					195				255	270
Y (DEG)	-							105		135	150	165	180		210	225	240		
5	4930	4915	4924	4922	4912	4921 4891	4911 4903	4908 4896	4925 4889	4896 4889	4920 4883	4906 4876	4930 4884	4915 4874	4924 4880	4922 4878	4912 4875	4921 4875	4911
10	4826	4830	4832	4834	4902	4824	4831	4811	4803	4801	4798	4805	4799	4782	4787	4776	4782	4779	4792
15	4707	4715	4707	4707	4698	4686	4689	4682	4662	4672	4651	4640	4643	4645	4635	4620	4635	4636	4645
20	4531	4533	4543	4537	4503	4510	4486	4495	4478	4466	4457	4450	4454	4441	4445	4429	4440	4439	4443
25	4283	4307	4295	4314	4298	4282	4267	4258	4248	4241	4217	4225	4225	4195	4199	4190	4200	4176	4203
30	4029	4042	4032	4028	4007	3998	3979	3976	3954	3956	3930	3940	3937	3926	3918	3904	3911	3889	3912
35	3712	3725	3733	3723	3690	3690	3666	3660	3640	3635	3622	3626	3619	3600	3594	3584	3578	3585	3595
40	3368	3397	3379	3388	3351	3343	3313	3303	3290	3287	3278	3278	3278	3245	3250	3235	3234	3231	3242
45	3016	3029	3022	3013	2987	2972	2956	2943	2930	2927	2920	2913	2914	2889	2891	2873	2864	2864	2883
50	2633	2655	2643	2640	2610	2598	2585	2569	2558	2550	2540	2538	2542	2512	2513	2501	2497	2488	2506
55	2246	2269	2262	2259	2236	2224	2203	2202	2177	2182	2161	2163	2164	2135	2145	2120	2123	2116	2134
60	1866	1902	1881	1891	1863	1861	1833	1838	1808	1818	1784	1798	1794	1767	1774	1746	1761	1749	1772
65	1495	1524	1509	1520	1496	1498	1470	1471	1450	1455	1430	1433	1430	1399	1413	1395	1405	1396	1414
70	1131	1159	1150	1165	1145	1145	1124	1127	1100	1104	1080	1079	1074	1055	1063	1052	1066	1055	1071
75	794	818	812	826	814	819	801	801	781	778	753	745	742	721	734	730	744	741	754
80	474	498 205	497	516 223	510 222	513 226	497 211	497 199	478 191	471	442 154	432 146	427 143	412 133	431 146	432 148	447	442 158	458
90	-	-	-	0.21		-										0.71	<u> </u>		
95	3.16	0.24	0.87	0.30	0.39	0.21	0.22	0.21	0.00	0.22	0.29	0.22	0.68	0.72	0.70	_	0.70	0.71	0.69
100	0.59	0.46	0.45	0.46	0.45	0.46	0.31	0.31	0.32	0.55	0.41	0.48	1.19	1.16	1.17	1.22	1.21	1.21	1.15
105	0.62	0.40	-	0.10	0.15	0.10	0.60	0.40	0.49	0.60	0.60	0.10	1.34	1.37	1.31	1.36	1.38	1.41	1.41
110	0.74	0.76	0.64	0.62	0.65	0.70	0.72	0.73	0.73	0.72	0.72	0.85	1.40	1.43	1.36	1.38	1.41	1.44	1.44
115	0.87	0.89	0.81	0.77	0.79	0.83	0.85	0.86	0.88	0.87	0.99	1.02	1.45	1.49	1.43	1.41	1.44	1.46	1.47
120	1.14	1.11	1.36	0.96	1.00	0.99	1.04	1.06	1.09	1.10	1.47	1.23	1.66	1.67	1.83	1.58	1.56	1.56	1.57
125	1.36	1.26	1.50	1.37	1.24	1.22	1.26	1.26	1.30	1.63	1.63	1.35	1.91	1.88	2.06	2.07	1.85	1.86	1.87
130	1.61	1.60	1.74	1.83	1.62	1.51	1.50	1.51	1.73	1.97	1.82	1.57	2.25	2.33	2.44	2.61	2.37	2.27	2.27
135	1.82	1.83	1.92	1.97	2.17	2.19	2.07	2.19	2.24	2.10	1.96	1.87	2.53	2.64	2.75	2.94	3.06	2.97	2.91
140	1.97	2.00	1.97	2.14	2.30	2.42	2.47	2.40	2.35	2.24	2.09	2.02	2.77	2.88	3.00	3.22	3.32	3.37	3.36
145	2.09	2.15	2.02	2.24		2.46		2.50		2.33		2.15		3.17	3.15		3.60		3.67
150	2.25	2.30	2.34	2.24	2.34		2.48	2.49	2.47	2.45	2.26	2.26	3.36	3.45	3.56	3.72	3.83	3.85	3.86
155	2.43	2.51	2.61	2.32	2.32	2.55	2.48	2.59	2.57	2.42	2.62	2.43	3.65	3.72	3.95	3.86	3.95	4.05	4.02
160	2.67	2.72	2.73	2.67	2.40	2.35	2.30	2.49	2.60	2.79	2.75	2.66	4.00	3.97	4.09	4.18	4.06	4.05	3.96
		2.90		2.88	2.73	2.73	2.73	2.83	2.95	2.94	2.88	2.84	3.91	3.94	4.08	4.23	4.25	4.18	4.15
165	2.84		2.91	_															4.09
170	3.07	3.10	3.10	3.07	2.83	2.85	2.93	2.88	3.04	3.05	3.01	3.06	3.90	3.99	4.06	4.14	4.17	4.05	
170 175 180 Table2			3.10 3.50	_	2.83 3.24 3.59	2.85 3.19 3.55	2.93 3.12 3.57	2.88 3.15 3.44	3.04 3.29 3.52	3.05 3.32 3.56	3.01 3.36 3.53	3.06 3.38 3.58	3.86	3.99	3.98 3.68	3.94 3.67	3.94 3.60 T: cd	3.81	3.76
170 175 180	3.07	3.10 3.50	3.10 3.50	3.07 3.43	3.24	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG)	3.07 3.42 3.59	3.10 3.50 3.66	3.10 3.50 3.66	3.07 3.43 3.66	3.24	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C (DEG) (DEG)	3.07 3.42 3.59	3.10 3.50 3.66 300	3.10 3.50 3.66 315	3.07 3.43 3.66 330	3.24 3.59 345	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C (DEG) (DEG) 0	3.07 3.42 3.59 285 4908	3.10 3.50 3.66 300 4925	3.10 3.50 3.66 315 4896	3.07 3.43 3.66 330 4920	3.24 3.59 345 4906	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C (DEG) (DEG) 0 5	3.07 3.42 3.59 285 4908 4878	3.10 3.50 3.66 300 4925 4880	3.10 3.50 3.66 315 4896 4878	3.07 3.43 3.66 330 4920 4903	3.24 3.59 345 4906 4912	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG) (DEG) 0 5 10 15 20	3.07 3.42 3.59 285 4908 4878 4800 4643 4454	3.10 3.50 3.66 300 4925 4880 4800 4651 4471	3.10 3.50 3.66 315 4896 4878 4816 4678 4482	3.07 3.43 3.66 330 4920 4903 4820 4690 4505	3.24 3.59 345 4906 4912 4825 4693 4519	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG) 0 5 10 15 20 25	3.07 3.42 3.59 285 4908 4878 4800 4643 4454 4208	3.10 3.50 3.66 300 4925 4880 4880 4651 4471 4239	3.10 3.50 3.66 315 4896 4878 4816 4678 4482 4482 4247	3.07 3.43 3.66 330 4920 4903 4820 4690 4505 4268	3.24 3.59 345 4906 4912 4825 4693 4519 4274	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
Table2 C(DEG) (DEG) (DEG) 0 5 10 15 20 25 30	3.07 3.42 3.59 285 4908 4878 4800 4643 4454 4208 3919	3.10 3.50 3.66 300 4925 4880 4651 4471 4239 3944	3.10 3.50 3.66 315 4896 4878 4816 4678 4482 4247 3970	3.07 3.43 3.66 330 4920 4903 4820 4505 4268 3998	3.24 3.59 345 4906 4912 4825 4693 4519 4274 4016	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
Table2 C(DEG) (DEG) 0 5 10 15 20 25 30 35	3.07 3.42 3.59 285 4908 4878 4800 4643 4454 4208 3919 3604	3.10 3.50 3.66 4925 4880 4800 4651 4471 4239 3944 3621	3.10 3.50 3.66 315 4896 4878 4816 4678 4482 4247 3970 3647	3.07 3.43 3.66 330 4920 4920 4903 4820 4505 4268 3998 3690	3.24 3.59 345 4906 4912 4825 4693 4519 4274 4016 3709	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG) 0 5 10 10 15 20 25 30 35 40	285 4908 4878 4800 4643 4454 4208 3919 3604 3255	3.10 3.50 3.66 4925 4880 4925 4880 4651 4471 4239 3944 3621 3279	3.10 3.50 3.66 315 4896 4878 4816 4678 4482 4247 3970 3647 3312	3.07 3.43 3.66 330 4920 4903 4820 4505 4268 3998 3690 3338	3.24 3.59 345 4906 4912 4825 4693 4519 4274 4016 3709 3361	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DZG) 0 5 10 15 20 25 30 35 40 45	285 4908 4878 4800 4643 4454 4208 3919 3604 3255 2888	3.10 3.50 3.66 4925 4880 4651 4471 4239 3944 3621 3279 2915	3.10 3.50 3.66 315 4896 4878 4816 4678 4482 4247 3970 3647 3312 2945	3.07 3.43 3.66 330 4920 4903 4820 4505 4268 3998 3690 3338 2979	3.24 3.59 345 4906 4912 4825 4693 4519 4274 4016 3709 3361 3001	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG) 0 5 10 10 15 20 25 30 35 40	285 4908 4878 4878 4643 4454 4454 4454 3919 3604 3255 2888 2516	3.10 3.50 3.66 3.66 4925 4880 4800 4651 4471 4239 3944 3621 3279 2915 2542	3.10 3.50 3.66 315 4896 4878 4816 4678 4482 4247 3970 3647 3312 2945 2562	3.07 3.43 3.66 4920 4903 4820 4505 4268 3998 3690 3338 2979 2599	3.24 3.59 345 4906 4912 4825 4693 4519 4274 4016 3709 3361	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG) 0 5 10 15 20 25 30 35 40 45 50	285 4908 4878 4800 4643 4454 4454 4208 3919 3604 3255 2888 2516 2144	3.10 3.50 3.66 3.66 4925 4880 4800 4651 4471 4239 3944 3621 3279 2915 2542	3.10 3.50 3.66 4896 4878 4816 4678 4482 4247 3370 3647 3312 2945 2562 2187	3.07 3.43 3.66 4920 4920 4903 4820 4505 4258 3998 3690 3338 2979 2599 2213	3.24 3.59 345 4906 4912 4825 4693 4519 4274 4016 3709 3361 3001 2626	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DZG) (DEG) 0 5 10 15 20 25 30 35 40 45 50 55	285 4908 4878 4800 4643 4454 4208 3919 3604 2255 22888 2516 2144 1775	3.10 3.50 3.66 3.66 4925 4880 4651 4471 44239 3944 3621 3279 2915 2542 2160	3.10 3.50 3.66 4896 4878 4816 4678 4482 4247 3370 3647 3312 2945 2562 2187	3.07 3.43 3.66 4920 4903 4820 4505 4268 3998 3690 3338 2979 2599 2213 1853	3.24 3.59 345 4906 4912 4825 4693 4519 4274 4016 3709 3361 3001 2626 2237	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG) 0 5 5 10 15 20 25 30 45 55 60	285 4908 4878 4800 4643 4454 4208 3919 3604 3255 2888 22516 2144 1775 1411	3.10 3.50 3.66 3.66 4925 4880 4651 4471 4239 3944 3621 3279 2915 2542 2150 1811	3.10 3.50 3.66 4896 4878 4816 4678 4482 4247 3970 3647 2945 2562 2187 1813	3.07 3.43 3.66 330 4920 4903 4820 4505 4268 3998 3690 3338 2979 2213 1853 1483	3.24 3.59 345 4906 4912 4825 4693 4519 4274 4016 3709 3361 3001 2626 2237 1853	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG) 0 5 10 15 20 25 30 35 40 45 55 60 65	285 4908 4878 4800 4643 4454 4208 3919 3604 3255 2888 22516 2144 1775 1411	3.10 3.50 3.66 3.66 4925 4880 4880 4651 4471 4239 3944 3621 3279 2915 2242 2160 1811 1445	3.10 3.50 3.66 3.66 4896 4878 4816 4678 482 4247 3970 3647 3312 2945 2562 2187 1813 1451	3.07 3.43 3.66 330 4920 4903 4820 4505 4268 3998 3690 3338 2979 2213 1853 1483	3.24 3.59 345 4906 4912 4825 4693 4274 4016 3361 3001 2626 2237 1853 1485	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C(DEG) (DEG) 0 5 10 15 10 15 20 25 30 45 55 55 55 60 65 70 75 80	3.07 3.42 3.59 4908 4878 4878 4878 4878 4878 4878 4878 48	3.10 3.50 3.66 3.66 4925 4880 4651 4471 4239 3944 3621 3279 2915 2542 2160 1811 1445 1101 775 474	3.10 3.50 3.66 4896 4878 4882 4878 4842 4247 3970 3647 3312 2562 2187 1813 1451 1000 774 471	3.07 3.43 3.66 4920 4903 4800 4505 4268 3998 3690 2599 2213 1853 1483 1483 791 481	3.24 3.59 4906 4912 4825 4693 4519 4274 4016 3301 2626 2237 1853 1485 1124 791 475	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 175 180 180 100 100 10 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85	3.07 3.42 3.59 4878 4878 4878 4878 4878 4878 4878 487	3.10 3.50 3.66 3.66 4925 4880 4800 4800 4800 4800 4801 4239 3944 3621 3279 2542 2160 1811 1445 1101 775 474 187	3.10 3.50 3.66 4896 4878 4896 4478 44678 44678 44678 44678 44678 44678 44678 4247 3970 3647 3312 2945 2945 2945 2945 2187 1813 1451 1100 774 471 181	3.07 3.43 3.66 4920 4903 4820 4505 4268 3998 3690 2599 2213 1853 1483 1124 791 481 190	3.24 3.59 4906 4912 4825 4693 4519 4274 4016 3361 3001 2626 2237 1853 1485 1124 475 185	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 Table2 C (DEG) 0 5 10 15 20 25 30 35 40 55 60 65 60 65 80 85 90	3.07 3.42 3.59 4908 4878 4878 4878 4878 4878 4878 4878 48	3.10 3.50 3.66 4925 4880 4651 4471 4239 2915 2542 2542 2160 2915 12542 1101 775 474 187 0.67	3.10 3.50 3.66 4896 4878 4878 4878 4878 4878 4878 4878 487	3.07 3.43 3.66 4920 4903 4820 4505 4268 33938 3690 3338 2979 2213 1483 1124 791 481 190 0.65	3.24 3.59 345 4906 4912 4825 4693 4274 4016 3709 3361 3001 3361 3001 2626 2237 1853 1485 1124 791 185 3.00	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 175 180 Table2 C(DEG) 0 5 10 15 10 15 20 25 30 35 40 45 50 55 50 55 60 65 70 75 80 85 90 95	3.07 3.42 3.59 4908 4878 4800 4643 44208 3919 3604 3255 2144 1775 1411 1074 755 457 173 1074 0.69 0.90	3.10 3.50 3.66 4925 4880 4651 4471 4239 2915 2542 2160 2944 3279 2915 2542 2160 1811 1445 1101 775 474 187 0.67 0.89	3.10 3.50 3.66 4896 4878 4816 4678 44247 3970 3647 3312 2945 2562 2187 1813 1451 1100 774 471 181 100.71 0.71 0.89	3.07 3.43 3.66 4920 4903 4820 4505 4268 3398 3386 2979 2599 2213 338 1483 1124 791 481 190 0.65 0.95	3.24 3.59 4906 4912 4825 4693 4519 4274 4016 3709 3361 3001 2626 2237 1855 1124 791 475 3.00 0.91	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 175 180 180 100 15 5 5 10 15 20 20 20 20 20 20 25 50 55 50 55 50 55 50 55 50 55 50 55 50 55 50 55 55	3.07 3.42 3.59 4908 4878 4800 44643 44643 44643 44643 44643 44643 44643 4454 4208 3919 3255 2888 2516 22144 1775 1411 1074 1075 457 173 0.69 0.300 1.19	3.10 3.50 3.66 4925 4880 4880 4651 4471 3279 2915 2542 2160 1811 1445 1101 775 474 187 0.67 0.89 1.16	3.10 3.50 3.66 4896 4878 4896 4878 4816 4482 4482 3945 3647 3312 2945 2187 1813 1451 1000 774 471 181 0.71 0.89 1.17	3.07 3.43 3.66 4920 4903 4820 4505 3998 3690 3338 2979 2213 1853 1483 1483 1484 791 481 190 0.65 0.95 1.13	3.24 3.59 345 4906 4912 4825 4519 4274 4016 3709 2626 2237 1853 1124 791 475 185 0.09 1.10	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 175 180 Table2 C(DEG) (DEG) 0 5 10 15 20 25 30 15 20 25 30 45 55 40 45 55 60 65 70 75 80 85 90 95 100	3.07 3.42 3.59 4908 4878 4800 4454 4208 3919 3604 4454 4208 2516 2144 2144 2255 2888 2516 2144 1074 755 1411 1074 457 1773 0.69 0.90 .199	3.10 3.50 3.50 3.66 4925 4880 4651 4471 4239 3944 3621 3279 2915 2542 2160 1811 1445 1101 775 1101 1474 1871 0.67 0.89 1.16 1.35	3.10 3.50 3.66 4896 4878 4816 4678 4482 4247 3970 3647 3312 2945 2562 2187 3312 2945 2562 2187 312 2945 2562 2187 1813 1451 1100 774 471 181 0.89 0.89 11.17 1.32	3.07 3.43 3.66 4920 4903 4820 4690 44505 4268 3998 2423 3690 3338 2979 2213 1483 1124 791 190 0.65 0.95 1.13 1.26	3.24 3.59 345 4906 4912 4693 4519 4274 4016 3709 3361 3001 2626 33061 2626 791 475 185 3.00 0.91 1.10 1.35	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 170 175 180 180 C(DZG) (DZG) (DZG) (DZG) 10 15 20 25 30 35 40 45 50 55 60 65 75 80 85 90 95 100 105 110	3.07 3.42 3.59 4908 4870 4870 4870 4870 4870 4870 4870 48	3.10 3.50 3.50 3.66 4925 4880 4800 4651 4239 3944 3621 22150 2542 2150 2915 2542 2150 1811 1445 1011 775 474 187 0.67 0.69 1.35 1.38	3.10 3.50 3.66 315 4896 4878 4878 4878 44678 44678 44678 44678 44678 44678 44678 44678 44678 33970 3647 3312 2945 2945 2945 2945 2945 2945 2945 294	3.07 3.43 3.66 4920 4920 4903 4820 4690 44505 4268 3998 3690 2539 2213 3338 2979 2539 2213 1853 1124 791 1053 1124 481 190 0.65 0.95 1.13 1.26	3.24 3.59 345 4906 4912 4825 4693 4519 4274 407 3361 3001 2626 3709 3361 3001 2626 3709 3361 3001 2626 3001 2627 1853 1485 1124 475 185 3.00 0.91 1.10 5.31 1.35	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 175 180 Table2 C(DEG) 10 15 10 15 20 20 20 20 20 20 20 20 30 35 40 45 55 60 65 80 65 85 85 95 95 100 105 115 115 100 115 100 100	3.07 3.42 3.59 4908 4878 4800 44878 4454 4454 4454 4454 4454 4208 2255 2888 2516 2144 1775 1411 755 457 173 173 90.90 1.107 1.43 1.43	3.10 3.50 3.66 4925 4880 4800 4800 4800 4800 2915 2542 2542 2542 2542 2542 2542 2542 25	3.10 3.50 3.66 3.66 4876 4876 4878 4816 4482 4247 3970 3312 2945 2295 22187 1813 1451 774 471 181 0.71 0.71 0.71 0.71 1.32 1.37	3.07 3.43 3.66 4920 4903 4820 4505 4266 4505 4266 3338 2979 2213 1853 1482 481 190 6.65 0.65 0.65 0.65 1.13 1.26 1.29	3.24 3.59 4906 4912 4825 4693 4519 4693 4519 4016 3301 2626 2237 1853 3001 2626 2237 1853 3001 2626 2137 185 3.00 0.91 1.10 1.37 1.37	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 175 180 C(DEG) (DEG) 0 5 10 15 20 10 15 20 30 35 40 45 55 55 60 65 70 75 80 85 90 95 100 115 110 115 120 110 115 120 120 120 120 120 120 125 100 100 15 100 100 15 100 100	3.07 3.42 3.59 4908 4878 4878 4878 4878 4454 4454 4454 2288 22144 22888 22144 22888 22144 1775 173 0.69 0.90 0.90 0.90 1.19 1.40 1.45 1.54	3.10 3.50 3.50 3.66 4925 4880 4925 4880 4401 4239 3944 4451 4471 4239 3944 4239 3944 4239 3944 1445 1101 1445 1101 1445 1101 1445 1.36 1.35 1.38	3.10 3.50 3.66 3.66 4878 4896 4678 4482 2945 2945 2945 2945 2945 2945 2945 2187 3312 2945 2187 311 300 774 471 181 0.89 2.1451 1100 7.71 0.89 1.151 1.37 1.55	3.07 3.43 3.66 4920 4903 4820 4505 4268 3998 4630 4505 4268 3998 2979 2599 3338 2979 2599 3338 1853 1483 1124 481 190 0.65 1.29 1.29 1.26 1.29	3.24 3.59 345 4906 4912 4825 4693 4519 3361 3001 2237 1853 1485 2237 1853 1485 3.00 0.91 1.10 1.35 1.37 1.45 1.59	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 175 180 180 100 10 10 10 10 15 5 10 10 15 20 20 20 25 30 40 45 55 55 60 65 70 75 80 85 90 95 100 115 100 115 100 115 100 115 100 115 100 115 100 115 100 115 100 115 100 100	3.07 3.42 3.59 285 4908 4878 4878 4878 4878 4878 4878 4878 48	3.10 3.50 3.66 4925 4880 4651 4471 4239 2915 2915 2915 29242 2160 1811 1101 775 474 187 0.67 0.89 1.16 1.35 1.38 1.41 1.50 1.74	3.10 3.50 3.66 3.66 4896 4678 4482 4482 4247 3312 2945 2187 1813 1451 1451 1451 161 0.71 0.89 1.17 1.32 1.35 1.37 1.50	3.07 3.43 3.66 330 4920 4903 4903 4903 4903 4903 4903 4903 4903 4903 4903 4903 4903 4903 4903 4904 4903 4904 4904 4903 4904 4904 4904 4904 4904 4904 4904 4904 4905 4907 9079 2213 1025 4015 4005 4	3.24 3.59 4906 4912 4825 4693 4274 4016 3709 4274 4016 3709 4274 4016 3709 1453 1465 1853 1485 1124 791 1853 3.00 0.91 1.35 1.37 1.45 1.37 1.45 1.59	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
Table2 C(DEG) 0 5 10 15 20 10 15 20 30 35 40 45 50 55 60 65 70 75 85 90 95 100 110 1110 1120	3.07 3.42 3.59 285 4908 4878 4878 4878 4878 4878 4878 4878 4878 4878 4878 4878 4878 4878 4878 2888 2516 2144 2144 2145 1775 1773 0.69 1.19 1.43 1.45 1.54 2.22	3.10 3.50 3.66 3.66 4925 4880 4651 4471 2915 2944 3944 3621 2915 2942 2915 2942 2915 2942 2915 2944 3924 100 1131 1411 1.35 1.35 1.35 1.41 1.57 4.2.26	3.10 3.50 3.66 3.66 4878 4896 4678 4482 2945 2945 2945 2945 2945 2945 2945 2187 3312 2945 2187 311 300 774 471 181 0.89 2.1451 1100 7.71 0.89 1.151 1.37 1.55	3.07 3.43 3.66 330 4920 4903 4920 4903 4920 4903 4920 4903 4920 4903 4920 4920 4920 4920 4920 4920 2999 2213 3338 2979 2299 2213 1483 1124 1921 481 1921 1.29 1.2	3.24 3.59 4906 4912 4825 4519 4274 4016 3301 2626 3301 2626 33001 2626 3001 2627 1853 1485 3000 0.91 1.10 1.37 1.45 1.59	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 175 180 Table2 C(DEG) 0 5 10 15 20 25 30 15 20 25 30 35 40 45 55 60 65 70 75 80 85 90 95 100 115 120 105 105 105 105 10 15 10 15 10 15 10 15 10 15 10 15 10 15 10 15 10 15 10 15 10 15 10 15 10 15 10 10 15 10 15 10 15 10 15 10 10 15 10 15 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 10 15 10 10 15 10 10 10 15 10 10 10 15 10 10 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	3.07 3.42 3.59 285 4900 48788 4878 4878 4878 4878 4878 4878 4878 4878	3.10 3.50 3.50 3.66 4925 4880 4651 4471 3279 3944 3621 3279 2542 2542 2542 2150 811 1445 1101 775 1.811 1445 1.16 1.35 1.36 1.35 1.36 2.28	3.10 3.50 3.66 3.66 4896 4878 4878 4878 4878 4878 4878 4878 487	3.07 3.43 3.66 330 4920 4	3.24 3.59 345 4906 4912 4825 4693 3001 2626 3361 3001 2626 1853 1485 1853 1485 1853 1485 1.091 1.10 1.35 1.37 1.45 1.59 1.79 2.12 2.49	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.70
170 170 175 180 180 C(DEG) (DEG) 0 5 5 10 15 20 25 30 35 30 40 45 50 65 55 60 65 75 80 65 90 100 110 110 125 100 100 115 120 120 120 120 120 120 120 120	3.07 3.42 3.59 285 4800 4878 4800 4643 4208 3919 2288 2288 2288 2288 2288 2288 2288 2288 2288 2288 2288 2144 1074 755 1411 1074 755 173 0.69 0.90 1.49 1.49 1.49 1.49 1.49 1.45 1.54 1.54 1.54 1.55 1.54 1.55	3.10 3.50 3.66 3.66 3.66 4925 4880 4880 4880 4880 4880 4651 3279 2915 2915 2915 2925 2942 2160 1811 101 775 4145 1101 775 1101 1.75 1.38 1.35 1.38 1.35 1.38 1.35 3.10 3.49 3.49	3.10 3.50 3.66 4896 4896 4896 4896 4816 4678 4816 4482 4247 3370 2945 2187 1813 2945 2187 1813 1100 774 181 100 774 181 100 774 181 100 774 181 100 774 181 100 774 181 100 774 181 2562 2167 183 195 195 195 195 195 195 195 195 195 195	3.07 3.43 3.66 330 4920 1.24 1.240 1.240 1.74 1.92 2.265 2.259 2.259 3.11	3.24 3.59 4906 4912 4693 4519 4274 4519 4274 3301 2626 2237 1485 1124 791 1.24 791 1.10 1.35 1.59 1.79 1.79 1.75 1.59 1.79 2.82 2.82 2.82 2.84 2.84 2.84 2.84 2.84	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 170 180 Table2 C(DEG) 10 15 10 15 10 15 20 20 20 20 20 20 20 20 20 35 40 45 50 65 50 65 50 65 50 65 50 65 50 100 115 120 100 115 100 115 100 115 100 105 100 115 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 100 105 105	3.07 3.42 3.59 285 4908 4870 4800 4870 4454 4454 4454 4454 4454 2288 2516 2144 2288 2516 2144 1075 757 457 173 457 173 457 174 175 457 174 1.43 1.45 1.45 1.45 1.45 1.45 1.45 1.45 3.59	3.10 3.50 3.66 3.66 4925 4880 4925 4926 101 100 1.35 1.381 1.351 1.411 1.50 1.74 2.288 3.49 3.79 4.74 4.74 4.74 4.74 4.74 4.72 4.288 3.48 3.48 3.48 3.48 3.49 3.47 3.47 3.47 3.47 3.49 3.47 3.4	3.10 3.50 3.66 4896 4876 4816 482 4847 3312 2562 2945 2562 21873 1451 1700 774 471 181 0.771 0.771 0.771 1.37 1.37 1.37 1.37 1.35 1.37 1.50 1.97 2.42 3.38	3.07 3.43 3.66 4920 4920 4903 4920 4690 4690 4690 3338 2979 2213 1853 1483 791 481 791 124 791 124 190 0.65 0.95 1.29 1.29 1.26 1.29 1.26 1.29 2.59 2.59 2.59 3.53	3.24 3.59 4906 4912 4825 4519 4274 4016 3709 3361 2626 2237 1853 3001 2626 2237 1853 3001 2626 1124 791 1853 3.00 0.91 1.35 1.37 1.35 1.37 2.122 2.49 2.49 2.49 2.49 2.49 2.49 2.49 2.	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 1801e2 C(DEG) 0 5 10 15 20 25 30 35 40 45 50 65 60 90 105 100 105 100 105 110 115 120 125 130 135 140 145 155	3.07 3.42 3.59 4908 4878 4880 4643 4454 4454 4458 4458 2516 2888 3919 3604 3255 2888 2516 2514 1775 1411 1074 755 1411 1074 755 1411 1074 755 1411 1074 755 1411 1074 755 1411 1074 755 1411 1074 755 1411 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1415 1074 755 1455 1074 755 1157 1074 755 1157 1074 755 1157 1074 755 1157 1074 755 1157 1074 1074 755 1157 1074 10	3.10 3.50 3.66 4925 4880 44925 4880 4471 4239 4451 4471 4239 3279 2915 2542 2150 2915 2542 2150 811 1445 1101 775 474 1475 1145 1.38 1.445 1.38 1.38 1.38 3.49 3.71 3.58	3.10 3.50 3.66 4896 4878 4816 4878 4482 4473 3312 2945 2945 2945 2945 2945 2945 2945 294	3.07 3.43 3.66 4920 4903 4820 4505 4256 4256 3398 3690 3398 3690 3398 3690 3398 3998 3690 3398 2279 2213 1483 1124 791 1.24 1.29 1.24 1.29 1.39 1.29 1.39 1	3.24 3.59 4906 4912 4825 4693 4519 4619 3001 2626 237 1485 1244 471 4016 3001 2626 237 1485 1124 475 185 1.247 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.37 1.45 1.59 1.59 1.59 1.59 1.59 1.59 1.59 1.5	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 200 20 50 50 50 50 90 95 100 101 115 120 130 140 145	3.07 3.42 3.59 4908 4878 4800 4878 4800 285 4908 4878 4800 2919 3604 2288 2316 2144 2288 2516 2144 755 1411 1074 755 1411 1074 755 1411 1074 755 1411 1074 755 1411 1074 1075	3.10 3.50 3.66 4925 4880 4800 4800 4800 4800 4800 2945 2542 2915 2542 2915 2542 2915 2542 2915 2542 2101 1011 775 474 474 1.01 1.01 1.01 1.01 1.01 1.35 1.38 1.35 1.38 3.49 3.71 3.95	3.10 3.50 3.66 4896 4878 4896 4878 4824 4824 3312 2562 2187 1813 1451 1000 774 4711 1.00 774 4711 1.00 774 4711 1.37 1.350 1.37 1.37 1.37 1.37 3.88 3.71 3.88 3.71 3.88	3.07 3.43 3.66 4920 4903 4920 4903 4920 4903 4820 4810 1.226 1.220 1.33 1.226 2.590 2.290 2.290 3.123 3.59 3.990 4.13 3.593 3.990 4.11 4.	3.24 3.59 345 4902 4892 4693 4274 4012 4825 4693 3361 3001 2227 1853 3001 2227 1853 1485 2227 1853 1485 1124 791 1.24 105 1.35 1.35 1.45 1.59 2.12 2.49 2.12 2.49 2.12 2.49 3.36 1.59 3.45 1.59 1.59 1.59 1.59 1.59 1.59 1.59 1.5	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 180 10 15 10 15 20 20 20 20 20 20 30 40 45 50 55 60 65 70 75 80 65 90 95 100 101 110 112 120 130 135 140 145 150 155 160	3.07 3.42 3.59 4908 4878 4908 4878 4878 4454 3919 3604 4454 3919 3604 2258 2888 2516 2144 1775 173 0.69 1.19 1.457 1.457 1.457 1.457 1.457 1.457 3.54 4.050 3.54 4.050 4.050 4.050 3.54 3.54 3.54 3.55 3.54 3.55 3.54 3.55 3.54 3.55 3.54 3.55 4.050 3.55 3.55 3.55 4.050 3.55 4.050 3.55 3.55 4.050 3.55 3.55 4.050 3.55 3.55 4.050 3.55 3.55 4.050 3.55	3.10 3.50 3.66 3.66 4925 4880 4800 4805 4915 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4925 4935 4935 4935 4935 4935 4935 4935 4935 4935 4035 4035 4057	3.10 3.50 3.66 4876 4876 4878 4876 4678 4482 2945 2562 2945 2562 2945 2562 2945 2562 2945 2562 2945 100 774 471 100 774 471 100 774 10.89 1.37 1.35 1.37 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.37 1.35 1.35 1.35 1.35 1.35 1.35 1.35 1.35	3.07 3.43 3.66 4920 4903 4820 4903 4820 4505 4269 4269 4269 4269 4269 4269 4259 2213 1483 1297 22979 2	3.24 3.59 345 4906 4912 4693 4519 4693 4519 4693 4519 4693 4693 4693 4693 4693 4693 4693 469	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
Table2 C (DEG) (DEG) (DEG) 20 25 30 15 20 25 30 15 20 25 30 45 55 40 45 55 60 65 70 75 80 65 100 105 100 105 100 105 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 15 100 100	3.07 3.42 3.59 4908 4870 4870 4840 4840 4840 4840 4840 3913 225 2880 225 2880 3913 4454 4208 3913 4454 4208 3913 225 2880 2144 1275 2880 2145 457 173 1745 1745 1745 1745 1745 1745 1745 1745	3.10 3.50 3.66 4925 4880 4800 4800 4800 4800 4800 4800 480	3.10 3.50 3.66 4876 4876 4876 4876 4876 4876 4827 3970 3647 3970 3647 3970 3647 3970 3647 3970 3647 3970 3647 1813 1451 100 774 471 181 100 774 1813 1451 100 774 1337 1351 100 774 1337 1351 1351 1351 1351 1351 1351 1351	3.07 3.43 3.66 4920 4903 4920 4903 4920 4903 4920 4903 4920 4903 4920 4903 4920 4903 4920 4920 4920 4920 4920 4920 4920 4920	3.24 3.59 345 4906 4912 4825 4639 4274 4016 2237 1053 3001 2227 1053 1053 1053 1053 1053 1053 1053 1053 1053 1053 1053 1053 1053 1055 1	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76
170 175 180 180 10 15 10 15 20 20 20 20 20 20 30 40 45 50 55 60 65 70 75 80 65 90 95 100 101 110 112 120 130 135 140 145 150 155 160	3.07 3.42 3.59 4908 4878 4878 4878 4878 4878 4878 4878 48	3.10 3.50 3.66 4925 48800 4651 4471 3279 2915 2915 2915 2915 2915 2160 1811 101 775 2542 2160 1811 101 775 1.36 1.35 1.38 1.35 1.38 1.474 1.35 1.38 1.35 1.38 1.35 1.38 3.49 3.39 4.09 3.39 3.39 4.09 3.37 3.37 3.	3.10 3.50 3.66 4876 4876 4878 4876 4878 4482 2945 2562 2945 2562 2945 2562 2945 2562 2945 2562 2945 100 774 471 100 774 471 100 774 10.89 1.37 1.35 1.37 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.35 1.37 1.37 1.35 1.35 1.35 1.35 1.35 1.35 1.35 1.35	3.07 3.43 3.66 4920 4903 4920 4505 4920 4505 4920 4505 2338 2979 2213 1833 1833 1843 1843 1843 1924 481 190 1.35 1.26 1.29 1.40 1.22 1.40 1.22 1.40 1.22 1.23 1.24 1.22 1.25 1.22 1.33 3.99 3.39 3.39 3.39 3.39 3.39 3.39	3.24 3.59 345 4906 4912 4825 4653 4653 4653 3001 2626 2237 1124 475 1350 1025 10	3.19	3.12	3.15	3.29	3.32	3.36	3.38	3.86	3.92	3.98	3.94 3.67	3.94	3.81	3.76

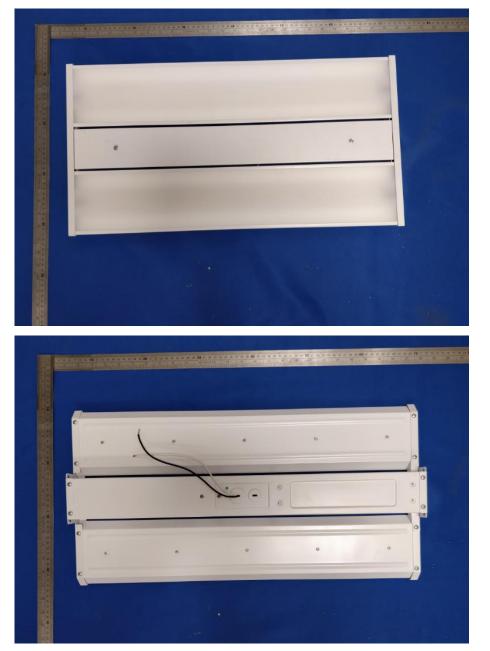
THD and PF Measurement Test Results: . . .

_	Electrical Measurement:											
	Voltage (V)	Frequency (Hz)	Current (A)	Wattage (W)	Power Factor	iTHD(%)						
	277.0	60	0.3642	93.86	0.9304	15.91						





Photo of Sample:







Equipment List:

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2018-11-16	2019-11-15
NTC-F01-006	2.0 meter Integrating Sphere	2018-11-16	2019-11-15
NTC-F01-012	Standard Lamp	2018-11-13	2019-11-12
NTC-F01-013	Standard Lamp	2018-11-13	2019-11-12
NTC-F01-031	Digital Power Meter	2018-08-29	2019-08-28
NTC-F01-019	Temperature & Humidity Meter	2018-11-12	2019-11-11

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

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