



# LM-79-08 Test Report

For

# **ELEC-TECH INTERNATIONAL CO LTD**

No.1 Jinfeng Road, Tangjiawan Town, Xiangzhou District, Zhuhai City, Guangdong Province, P.R. China 519085

# Wall Pack

Model name(s): 533041xx

Representative (Tested) Model: 53304161

Model Difference: XX=61-70 intends CCT is 5000K

Prepare By:

loston

Engineer: Leo Liu Date: 2017-06-22

Review By:

incer Tven

Technical Lead:Vincent Yuan Date: 2017-06-22

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

Laboratory: Dongguan New Testing Centre Co., Ltd Page 1/11 Address: 3F, No. 1 the 1<sup>st</sup> North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China Tel: 86-755-2344 3526 Website: http://www.ntc-cert.com





Client Name:	ELEC-TECH INTERNATIONAL CO LTD
Brand Name:	ETI
Model Number:	53304161
Product type:	Outdoor Non-Cutoff and Semi-Cutoff Wall-Mounted Area
	Luminaires
Rating Input:	AC120-277V, 50/ 60Hz, 54W
Declared CCT:	5000K
Declared Light Output:	6000lm
LED Manufacturer:	Samsung
LED Model:	2835 Series
LED Quantity:	126 pcs
Forward current of LED Chip:	200mA
Date of Receipt Samples:	2017-06-14
Quantity of Receipt Samples:	1
Sample Number:	170614006-S1
Laboratory Information:	
Test Laboratory:	Dongguan New Testing Centre Co., Ltd
Laboratory Address:	3F, No. 1 the 1 <sup>st</sup> North Industry Road, Songshan Lake Science &
	Technology Park, Dongguan, Guangdong, China
Laboratory Contact Name:	Neil Zhong
Laboratory Contact E-mail:	Neil_ntc@163.com
<b>Report Information</b>	
Issued Date of Test Report:	2017-06-22
Revised Date of Test Report:	N/A
Test Report No.:	NTCR17060039
Remark (If applicable)	N/A





Test Specifications	
Date of Test	2017-06-15
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 C78.377-2008 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  $25^{\circ}$  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 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° Vertical 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  $25^{\circ}$  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 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.

#### 3. THD and PF measurements

The sample was tested according to the ANSI C82.77-2002, the sample was operated at rated voltage and was stabilized before measurement. The total harmonic distortion were calculated from the digital power meter.





**Integrating Sphere Test Results** 

Test Co				
Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time
25.0	42	Face Down	90	25
Electric	al Data:			

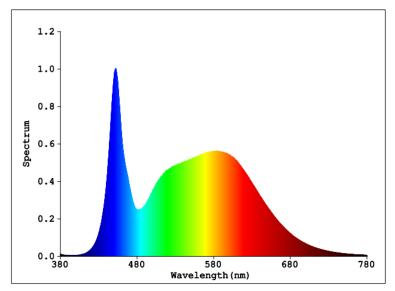
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	<b>Power Factor</b>
120.0	60	0.4539	53.99	0.9912

Color Data:

0 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0	
Parameter	Result
CCT(K)	5206
Color Rendering Index (CRI)	84.8
R9	16
Chromaticity, x	0.3396
Chromaticity, y	0.3471
Chromaticity u'	0.2094
Chromaticity v'	0.4816
Duv	0.00000

Special Color Rendering										
R1	84	R9	16							
R2	90	R10	76							
R3	93	R11	84							
R4	85	R12	64							
R5	84	R13	86							
R6	85	R14	96							
R7	87	R15	79							
R8	70	-	-							

## Spectrum Diagram:





NVLAP®

NVLAP LAB CODE 600150-0

Report No: NTCR17060039 Report Version: V1.1

**Goniophotemeter Test Results:** 

Test Condition:										
Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time						
24.9	42	Face Down	90	25						
Electric	al Data:									

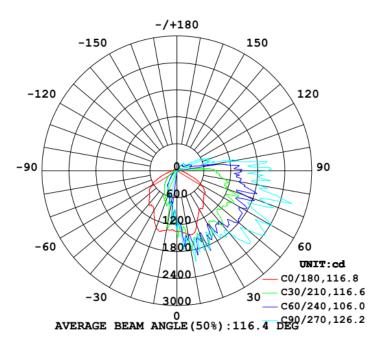
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	Power Factor
120.0	60	0.4539	53.99	0.9912

### **Goniophotometer Data:**

Parameter	Result
Total Luminous (lm)	6184.7
Total Luminous per foot (lm/ft)	N/A
Luminous Efficacy (lm/w)	114.55
Zonal Lumens (0-90°) (lm)	5175
Zonal Luminous Efficacy(0-90°) (lm/w)	95.85
Zonal Lumens Distribution (80-90°)	11.67%
Beam Angle (°)	116.4
Center Beam Candle Power (cd)	2656

### **Luminous Intensity Distribution Diagram:**

LUMINOUS INTENSITY DISTRIBUTION DIAGRAM



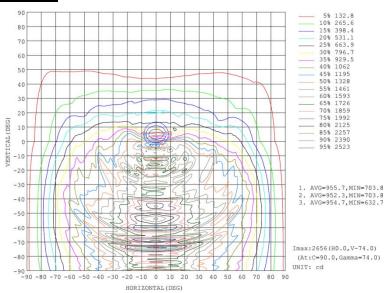
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ZONAL FLUX DIAGRAM:

Y	C0	C45	C90	C135	C180	C225	C270	C315	۲	zone     zone	total	%lum,lam
10	1439	1480	1564	1443	1336	701.6	720.0	699.2	0-10	114.5	114.5	1.85,1.85
20	1278	1603	1827	1552	1348	577.6	527.7	578.4	10- 20	334.5	449.0	7.26,7.26
30	996.2	1513	1509	1448	1029	450.5	364.2	456.8	20- 30	502.9	951.9	15.4,15.4
40	908.5	1356	1764	1313	974.4	323.1	183.3	316.8	30- 40	594.8	1547	25,25
50	801.8	1532	2056	1469	792.9	209.0	73.68	204.3	40- 50	702.7	2249	36.4,36.4
60	618.7	1569	2449	1464	640.3	102.6	39.92	104.2	50- 60	778.2	3028	49,49
70	316.0	1365	2116	1381	380.6	38.39	2.953	41.30	60- 70	773.2	3801	61.5,61.5
80	155.6	1246	1868	1170	181.1	15.94	4.144	18.26	70- 80	744.1	4545	73.5,73.5
90	102.0	1094	1998	1071	105.7	9.506	5.214	10.39	80- 90	629.9	5175	83.7,83.7
100	62.19	552.9	1127	433.4	70.08	7.395	9.422	7.546	90-100	504.5	5679	91.8,91.8
110	64.16	291.1	720.4	303.4	70.55	5.598	9.294	5.540	100-110	212.4	5892	95.3,95.3
120	45.95	147.9	370.1	146.6	50.94	4.911	7.785	4.517	110-120	138.6	6030	97.5,97.5
130	26.04	127.7	217.8	126.8	33.74	4.018	4.930	3.647	120-130	67.14	6097	98.6,98.6
140	9.875	121.2	199.1	119.4	11.51	3.103	3.446	2.868	130-140	48.09	6146	99.4,99.4
150	3.650	56.34	106.4	56.50	3.288	2.892	2.968	2.744	140-150	27.58	6173	99.8,99.8
160	3.511	2.488	59.35	2.596	3.561	2.614	2.637	2.668	150-160	9.554	6183	100,100
170	3.543	4.994	6.097	3.850	3.725	2.741	2.899	2.662	160-170	1.697	6184	100,100
180	3.689	2.996	3.077	2.905	3.769	2.868	2.825	2.658	170-180	0.3191	6185	100,100
DEG		LUM	INOUS INTE	NSITY:cd	Less than	25% Percen	t = 10.2 %	1		UNI	T:lm	





## NVLAP LAB CODE 600150-0

**Luminous Distribution Intensity Data:** 

Table1																UNI	T: cd		
C (DEG)																			
(DEG)	0	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270
0	1345	1359	1384	1337	1333		1320	1354	1330	1334	1337	1345	1345	1359	1384	1337	1333	1337	1320
5	1366	1414	1356	1191	1433	1634	1767	1725	1536	1182	1198	1115	1319	1129	921	1038	1109	1183	1199
10	1439	1387	1679	1480	1473	1456	1564	1510	1510	1443	1609	1202	1336	1024	1251	702	786	704	720
15 20	1442 1278	1407 1590	1540 1562	1629 1603	1767 1489	1535 1861	1606 1827	1552 1917	1742 1480	1609 1552	1417 1436	1271 1377	1391 1348	1168 1203	767	725 578	632 587	556 511	567 528
25	11278	1454	1700	1469	1562	1686	1504	1722	1622	1412	1459	1249	1169	1016	685	560	486	451	448
30	996	1324	1560	1513	1362	1604	1509	1637	1404	1448	1364	1153	1029	845	553	451	400	378	364
35	1013	1357	1385	1418	1501	1660	1725	1704	1519	1361	1270	1157	955	744	493	392	328	286	285
40	909	1563	1582	1356	1481	1700	1764	1723	1525	1313	1469	1326	974	677	425	323	239	181	183
45	845	1208	1261	1385	1626	1932	2295	2023	1681	1341	1120	1030	861	575	366	260	177	129	113
50	802	1166	1303	1532	1793	1883	2056	1927	1824	1469	1182	1003	793	432	304	209	121	83.0	73.7
55	748	1258	1362	1543	1739	2090	2375	2184	1764	1458	1204	1027	747	336	248	152	75.5	57.8	55.7
60	619	1190	1430	1569	1647	2189	2449	2230	1662	1464	1250	1021	640	300	199	103	44.4	41.4	39.9
65	482	1098	1243	1306	1445	1711	1758	1778	1472	1273	1098	902	515	227	146	67.6	22.3	19.6	16.2
70	316	1066	1117	1365 1355	1628	1950	2116	2079	1790	1381	1091	913	381	183	103	38.4	6.07	4.08	2.95
75 80	222 156	889 732	1110 1070	1355	1773 1400	2295 1801	2425 1868	2412 1869	1841 1420	1373 1170	996 1011	792 648	256 181	145 117	75.9 56.6	20.2	3.46	2.96	3.58
80	156	554	959	1246	1400	1801	1868	1889	1420	1115	829	496	181	94.1	45.8	13.0	4.08	4.07	4.14
90	102	405	860	1094	1409	1933	1998	1940	1399	1071	780	363	106	81.6	38.6	9.51	4.08	4.70	5.21
95	90.6	229	596	989	1390	1803	1975	1812	1294	873	452	180	99.4	74.8	32.2	8.01	5.31	5.98	7.03
100	62.2	124	290	553	814	1063	1127	1057	741	433	239	114	70.1	50.3	20.5	7.39	6.17	7.59	9.42
105	40.0	77.3	316	221	434	612	565	723	358	213	290	79.9	45.5	30.1	12.4	6.38	6.36	8.15	9.45
110	64.2	68.5	212	291	338	598	720	604	382	303	201	66.2	70.5	40.9	16.0	5.60	6.47	8.17	9.29
115	54.3	56.3	133	211	318	569	639	577	341	210	125	55.4	60.3	32.1	12.3	5.25	6.35	8.16	8.60
120	46.0	49.6	102	148	220	323	370	333	242	147	92.4	48.6	50.9	25.7	9.44	4.91	5.92	7.96	7.78
125	37.8	46.1	97.9	126	169	213	237	223	179	125	89.9	45.9	43.2	20.7	7.03	4.34	4.74	6.62	6.53
130	26.0	24.3	94.1	128	163	196	218	204	168	127	85.9	29.9	33.7	15.1	5.40	4.02	4.13	4.26	4.93
135	15.0	12.2	88.8	132	168	197	215	202	171	130	81.0	9.11	14.6	11.2	3.97	3.31	3.70	4.12	4.33
140	9.88	21.1	71.2	121	165	185	199	190	171	119	67.8	15.7	11.5	8.55	2.94	3.10	2.82	3.65	3.45
145	5.71	11.8	42.0	89.6	129	145	150	147	132	89.2	42.2	12.1	6.57	5.68	2.88	3.00	2.79	2.96	3.03
150	3.65	4.61	5.76	56.3	84.0	105	106	106	88.9	56.5	12.8	3.43	3.29	3.53	2.88	2.89	2.75	2.91	2.97
155	3.50	3.22	6.17	47.6	63.4	74.6	74.6	76.3	65.4	49.1	2.59	3.35	3.40	3.31	2.91	2.72		2.84	2.91
160	3.51	3.30		2.49	27.2	53.1 2.47	59.3	55.1 2.65	35.7	2.60	8.90	3.27	3.56	3.32	2.96	2.61	2.80	2.77	
	2 50	2 20					2.64	2.00	5.71	8.06	3.45	3.18		3.34	3.02			2.74	2.58
165	3.52	3.38	3.66				6 10	6 70	4 67	2 05	2 21	2 14						0 70	
165 170	3.54	3.43	3.47	4.99	3.28	7.17	6.10	6.72	4.57	3.85	3.21	3.14	3.73	3.35	3.07	2.74	2.80	2.73	
165 170 175 180 Table2		3.43 3.49				7.17 3.72	3.08	6.72 4.13 3.09	3.42	3.17	3.16	3.14 3.12 3.12	3.76	3.35 3.36 3.37	3.13	2.79 2.87	2.78	2.72	2.90 2.95 2.83
165 170 175 180 Table2 C(DEG) γ (DEG)	3.54 3.60 3.69 285	3.43 3.49 3.52 300	3.47 3.29 3.22 3.15	4.99 3.57 3.00 330	3.28 3.14 3.09 345	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C (DEG) Y (DEG) 0	3.54 3.60 3.69 285 1354	3.43 3.49 3.52 300 1330	3.47 3.29 3.22 315 1334	4.99 3.57 3.00 330 1337	3.28 3.14 3.09 345 1345	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C (DEG) Y (DEG) 0 5	3.54 3.60 3.69 285 1354 1184	3.43 3.49 3.52 300 1330 1064	3.47 3.29 3.22 315 1334 904	4.99 3.57 3.00 330 1337 867	3.28 3.14 3.09 345 1345 997	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 <b>Table2</b> C(DEG) γ (DEG) 0 5 10	3.54 3.60 3.69 285 1354 1184 720	3.43 3.49 3.52 300 1330 1064 818	3.47 3.29 3.22 315 1334 904 699	4.99 3.57 3.00 330 1337 867 1128	3.28 3.14 3.09 345 1345 997 849	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) y (DEG) 0 5 10 15	3.54 3.60 3.69 285 1354 1184 720 580	3.43 3.49 3.52 300 1330 1064 818 669	3.47 3.29 3.22 315 1334 904 699 685	4.99 3.57 3.00 330 1337 867 1128 639	3.28 3.14 3.09 345 1345 997 849 848	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) γ (DEG) 0 5 10 15 20	3.54 3.60 3.69 285 1354 1184 720 580 531	3.43 3.49 3.52 300 1330 1064 818 669 611	3.47 3.29 3.22 315 1334 904 699 685 578	4.99 3.57 3.00 330 1337 867 1128 639 668	3.28 3.14 3.09 345 1345 997 849 848 890	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C (DEG) 0 5 10 15 20 25	3.54 3.60 3.69 285 1354 1184 720 580 531 460	3.43 3.49 3.52 300 1330 1064 818 669	3.47 3.29 3.22 315 1334 904 699 685 578 533	4.99 3.57 3.00 330 1337 867 1128 639 668 602	3.28 3.14 3.09 345 1345 997 849 848 890 852	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) y (DEG) 0 5 10 15 20	3.54 3.60 3.69 285 1354 1184 720 580 531	3.43 3.49 3.52 300 1330 1064 818 669 611 498	3.47 3.29 3.22 315 1334 904 699 685 578	4.99 3.57 3.00 330 1337 867 1128 639 668	3.28 3.14 3.09 345 1345 997 849 848 890	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) Y(DEG) 0 5 10 15 20 25 30	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402	3.43 3.49 3.52 300 1330 1064 818 669 611 498 409	3.47 3.29 3.22 315 1334 904 699 685 578 533 457	4.99 3.57 3.00 330 1337 867 1128 639 668 602 540	3.28 3.14 3.09 345 1345 997 849 848 890 852 757	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) 0 5 10 15 20 25 30 35	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292	3.43 3.49 3.52 300 1330 1064 818 669 611 498 409 356	3.47 3.29 3.22 315 1334 904 699 685 578 533 457 390	4.99 3.57 3.00 330 1337 867 1128 639 668 602 540 452	3.28 3.14 3.09 345 1345 997 849 848 890 852 757 658	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165           170           175           180           Table2           C(DEG)           0           5           10           15           20           25           30           35           40	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 198	3.43 3.49 3.52 3.00 1330 1064 818 669 611 498 409 356 250	3.47 3.29 3.22 315 1334 904 699 685 578 533 457 390 317	4.99 3.57 3.00 1337 867 1128 639 668 602 540 452 380	3.28 3.14 3.09 345 1345 997 849 848 890 852 757 658 526	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) 0 5 10 15 20 25 30 35 40 45 50 55	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 198 139 88.6 60.2	3.43 3.49 3.52 300 1330 1064 818 669 611 498 409 356 250 186 131 81.9	3.47 3.29 3.22 1334 904 699 685 578 533 457 390 317 255 204 150	4.99 3.57 3.00 1337 867 1128 639 668 602 540 452 380 322 269 219	3.28 3.14 3.09 345 1345 997 849 848 890 852 757 658 526 400 347 321	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) 0 5 5 10 15 20 25 30 35 40 45 55 60	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 198 139 88.6 60.2 41.9	3.43 3.49 3.52 3.52 1330 1064 818 669 356 250 186 131 81.9 46.9	3.47 3.29 3.22 3.22 1334 904 699 685 578 533 457 390 317 255 204 150 104	4.99 3.57 3.00 1337 867 1128 669 668 602 540 452 380 322 269 219 181	3.28 3.14 3.09 345 1345 997 849 849 852 757 658 526 400 347 321 243	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) 0 5 10 5 10 15 15 20 25 30 30 35 40 45 55 50 55 60 65	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 198 139 88.6 60.2 41.9 20.5	3.43 3.49 3.52 3.52 1330 1064 818 669 611 498 409 356 250 186 131 81.9 46.9 22.9	3.47 3.29 3.22 3.22 1334 904 699 685 578 578 558 533 457 330 317 255 204 150 104 67.8	4.99 3.57 3.00 1337 867 1128 669 668 602 540 452 380 322 269 219 181 132	3.28 3.14 3.09 1345 997 849 849 852 757 658 526 400 347 321 243 195	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) (DEG) 0 5 5 10 15 20 15 20 15 20 33 30 35 30 35 50 60 65 70	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 198 139 88.6 60.2 41.9 20.5 2.89	3.43 3.49 3.52 300 1330 1064 818 669 611 498 409 356 250 186 131 81.9 46.9 22.9 6.35	3.47 3.29 3.22 1334 699 685 578 533 457 390 317 255 204 150 104 67.8 41.3	4.99 3.57 3.00 1337 867 1128 639 668 602 540 452 380 322 540 452 249 229 219 181 132 93.6	3.28 3.14 3.09 345 1345 997 849 849 852 757 658 658 658 658 658 400 347 321 243 195 156	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 175 180 Table2 C(DEG) (DEG) 0 5 10 0 5 10 0 5 20 25 30 35 40 45 55 60 65 75	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 198 88.6 60.2 41.9 20.5 2.89 2.95	3.43 3.49 3.52 300 1330 1330 1064 818 669 611 498 409 356 250 138 6 131 81.9 46.9 22.9 6.35 4.36	3.47 3.29 3.22 1334 699 685 578 533 457 390 317 255 204 150 104 67.8 41.3 22.6	4.99 3.57 3.00 1337 867 1128 639 668 602 540 452 380 322 269 219 219 181 132 93.6 70.8	3.28 3.14 3.09 345 1345 997 849 849 852 757 658 526 400 347 321 2243 195 156 124	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) (DEG) 0 5 10 15 20 0 5 5 10 15 20 35 30 35 30 35 35 30 35 55 60 65 70 75 80	3.54 3.60 3.69 285 1354 1184 720 580 531 460 292 198 139 88.6 60.2 41.9 20.5 2.89 2.89 2.85 3.57	3.43 3.49 3.52 300 1330 1064 818 669 611 498 250 186 131 81.9 22.9 6.35 4.36 3.90	3.47 3.29 3.22 1334 904 685 578 578 578 578 390 317 255 204 150 104 67.8 41.3 22.6 18.3	4.99 3.57 3.00 1337 867 1128 668 668 668 668 662 2540 452 289 219 181 132 93.6 70.8 53.1	3.28 3.14 3.09 1345 1345 997 849 849 852 757 658 526 400 347 321 243 195 156 124 98.6	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) (DEG) 0 5 5 0 0 5 5 15 15 20 25 25 25 25 25 30 35 30 35 30 35 5 60 65 5 60 65 5 80 70 75 88 5	3.54 3.60 3.69 285 1354 1184 720 580 551 460 402 292 198 88.6 60.2 41.9 20.5 2.89 2.95 3.57 3.91	3.43 3.49 3.52 300 1330 1064 818 669 669 669 669 669 669 669 650 810 8109 469 2209 6.35 4.36 4.36 3.90 4.01	3.47 3.29 3.22 315 1334 904 699 533 457 390 317 533 457 390 317 55 204 150 104 67.8 41.3 22.6 18.3 14.0	4.99 3.57 3.00 1337 867 1128 639 668 602 540 452 540 452 2540 452 2269 219 181 132 93.6 70.8 53.1 43.3	3.28 3.14 3.09 345 1345 997 849 849 852 757 658 526 400 347 321 2243 195 156 124	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) (DEG) 0 5 10 15 20 0 5 5 10 15 20 35 30 35 30 35 35 30 35 55 60 65 70 75 80	3.54 3.60 3.69 285 1354 1184 720 580 531 460 292 198 139 88.6 60.2 41.9 20.5 2.89 2.89 2.85 3.57	3.43 3.49 3.52 300 1330 1064 818 669 611 498 250 186 131 81.9 22.9 6.35 4.36 3.90	3.47 3.29 3.22 1334 904 685 578 578 578 578 390 317 255 204 150 104 67.8 41.3 22.6 18.3	4.99 3.57 3.00 1337 867 1128 668 668 668 662 2540 452 289 219 181 132 93.6 70.8 53.1	3.28 3.14 3.09 345 1345 997 849 848 890 852 757 658 526 658 526 658 347 321 243 195 156 80.2	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 (DEG) 0 5 10 15 20 25 30 25 30 35 40 45 55 50 65 70 75 80 85 90	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 198 88.6 60.2 41.9 20.5 2.89 2.95 3.57 3.91 4.48	3.43 3.49 3.52 300 1330 1064 818 669 651 498 409 356 250 186 556 250 186 4.36 4.36 4.36 4.36 4.36 4.36 4.30 4.01	3.47 3.29 3.22 315 1334 904 685 578 533 457 390 317 255 204 150 104 67.8 41.3 22.6 18.3 14.0	4.99 3.57 3.00 1337 867 1128 668 668 668 668 662 540 452 380 322 269 219 181 132 93.6 70.8 53.1 43.3 36.1	3.28 3.14 3.09 345 1345 997 849 850 852 757 658 526 400 347 321 243 195 156 8124 98.6 80.2 71.4	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 170 170 180 Table2 C(DEG) (DEG) 0 5 10 10 15 20 25 30 35 30 35 40 45 55 60 55 70 75 80 85 90 95	3.54 3.60 3.69 1354 1184 1184 720 580 531 460 232 198 139 88.6 60.2 292 198 139 88.6 402 292 198 139 88.6 20.5 3.57 3.91 4.48 6.17	3.43 3.49 3.52 300 1330 1064 669 611 498 409 611 356 250 186 131 81.9 22.9 6.35 4.36 3.90 4.01 4.11 5.16	3.47 3.29 3.22 315 1334 904 685 578 533 457 330 317 255 204 150 41.3 22.6 18.3 22.6 18.3 14.0 10.4 8.34	4.99 3.57 3.00 1337 867 668 602 540 322 269 219 181 132 93.6 70.8 53.1 43.3 36.1 29.5	3.28 3.14 3.09 345 1345 997 848 890 852 757 658 526 400 347 321 243 156 124 98.6 80.2 97.1.4 64.6	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) (DEG) 0 5 10 0 5 10 0 5 10 0 5 5 10 0 5 5 10 0 5 5 10 0 5 5 10 0 5 5 10 0 15 5 5 10 0 15 5 15 15 20 25 20 25 5 5 15 15 20 25 5 5 15 5 5 5 5 5 5 5 5 5 5 5 5 5	3.54 3.60 3.69 2285 1354 1184 720 580 531 460 531 460 292 292 139 88.6 60.2 41.9 20.5 2.89 2.95 3.57 3.91 4.48 6.17 7.89	3.43 3.49 3.52 3000 13300 1044 818 669 611 498 669 611 498 409 556 250 186 131 81.9 46.9 250 186 131 81.9 46.9 5.6 5.35 4.36 3.90 4.01 4.11 5.16 6.11	3.47 3.29 3.22 3.15 1334 904 699 685 578 533 457 390 317 255 204 150 104 18.3 14.0 22.6 18.3 14.0 10.4 8.34 7.55	4.99 3.57 3.00 1337 867 668 602 540 452 2869 219 181 322 93.6 70.8 53.1 43.3 66.1 29.5 20.1	3.28 3.14 3.09 345 1345 997 849 852 757 658 400 347 321 243 526 400 347 321 156 124 98.6 80.2 71.4 64.6 47.6	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 (C(DEG) (DEG) 0 5 10 15 20 20 20 20 20 25 30 35 35 35 35 35 55 60 65 60 65 70 75 75 80 85 80 85 90 95 100	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 198 88.6 60.2 41.9 2.95 3.57 3.91 3.91 4.48 6.17 7.89 8.21 8.21 8.21 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 8.21 7.89 7.89 7.89 7.89 7.89 7.89 7.89 7.89	3.43 3.49 3.52 300 1330 1064 818 669 409 356 250 131 81.9 46.9 2.59 2.29 6.35 4.36 3.90 4.01 4.11 5.16 6.518 6.58 6.58	3.47 3.29 3.22 315 1334 904 685 578 685 578 457 390 317 2255 204 155 204 155 104 41.3 2255 204 104 18.3 14.0 10.4 8.34 7.55 6.55 5.54 5.54	4.99 3.57 3.00 1337 867 1128 639 668 602 540 452 269 219 181 322 269 219 132 93.6 70.8 53.1 132 93.6 70.8 53.1 132 93.6 132 93.6 132 132 93.6 70.8 53.1 132 132 93.6 70.8 53.1 132 132 93.6 70.8 70.8 70.8 70.8 70.8 70.8 70.8 70.8	3.28 3.14 3.09 345 1345 997 849 849 890 852 757 658 526 400 347 321 243 155 156 124 98.6 80.2 71.4 64.6 47.6 26.4 26.4 28.8	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) (DEG) 0 5 10 15 20 0 5 10 15 20 35 30 35 30 35 30 35 55 60 65 70 75 80 85 80 85 90 95 100 105 110 115 120 110 110 110 110 110 110 110	3.54 3.60 3.69 285 1354 1184 720 580 402 292 292 292 292 292 198 88.6 60.2 41.9 20.5 2.89 2.95 2.89 2.95 3.57 3.91 4.48 7.89 8.57 8.61 7.89	3.43 3.49 3.52 300 1330 1064 818 669 356 611 498 409 2250 186 131 9 22.9 6.35 4.36 4.39 4.01 4.11 5.16 6.55 6.58	3.47 3.29 3.22 3.32 3.34 904 699 685 578 533 457 204 67.8 41.3 22.6 41.3 22.6 41.3 22.6 41.3 22.6 5.5 5.5 3.3 4.55	4.99 3.57 3.00 1337 867 1128 668 602 540 452 269 322 269 326 70.8 53.1 181 132 93.6 53.1 43.3 36.1 129.5 20.1 10.4 15.1 59.23	3.28 3.14 3.09 345 1345 997 849 852 757 658 890 852 757 658 400 347 321 156 80.2 243 195 156 80.2 243 195 154 98.6 80.2 243 243 243 243 243 243 243 243 243 24	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) (DEG) 0 5 5 0 0 5 5 30 35 30 35 30 35 30 35 30 45 55 60 65 55 60 65 70 75 80 85 90 95 100 100 115 120 110 110 115 120 110 110 110 110 110 110 110	3.54 3.60 3.69 285 1354 1184 720 531 460 292 198 88.6 60.2 41.9 20.5 2.89 2.95 3.57 3.57 4.48 6.17 7.89 8.27 8.61 8.45	3.43 3.49 3.52 300 1330 1064 818 669 611 498 250 186 6250 186 409 356 250 186 409 356 250 181 81.9 4.29 4.35 4.36 3.90 4.11 5.16 6.55 6.558 6.557 9 4.54	3.47 3.29 3.22 315 1334 904 699 533 390 317 255 578 457 390 317 255 204 150 104 67.8 41.3 22.6 18.3 22.6 18.3 22.6 18.3 4.5 5.54 5.54 5.54 4.52	4.99 3.57 3.00 1337 867 1128 669 669 669 6452 380 322 269 219 181 33.6 70.8 53.1 29.5 20.1 132 93.6 70.8 53.1 129.5 20.1 10.4 15.1 11.5 10.4 15.1	3.28 3.14 3.09 345 1345 997 849 848 890 852 658 526 400 757 658 526 400 195 526 124 195 124 98.6 125 126 40.6 47.6 47.6 47.6 47.6 47.6 47.6 47.6 47	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 (DEG) 0 5 10 15 20 25 30 15 20 25 30 35 35 40 45 55 60 65 65 65 65 80 85 80 85 90 95 100 115 120 105 100 115 120 105 105 105 105 105 105 105 10	3.54 3.60 3.69 285 1354 1184 720 580 531 460 292 198 139 88.6 60.2 41.9 20.5 3.57 3.91 2.89 2.89 2.89 2.89 2.89 2.89 2.89 2.89	3.43 3.49 3.52 300 1330 1064 818 669 611 498 409 250 186 250 186 250 181 81.9 4.05 4.35 4.36 3.90 4.01 5.16 6.51 6.58 6.58 6.58 6.58 6.58 4.40	3.47 3.29 3.22 315 1334 904 699 578 578 578 578 578 533 457 205 104 67.8 204 104 67.8 204 104 67.8 317 225 104 67.8 317 225 504 104 67.8 533 4.5 55 5,54 5,54 5,54 5,54 5,54 5,54 5,	4.99 3.57 3.00 1337 867 1128 668 602 540 380 322 269 181 132 293.6 70.8 53.1 43.3 36.1 29.5 20.1 10.4 15.1 11.5 9.23 7.02	3.28 3.14 3.09 345 1345 997 849 848 890 852 526 400 347 321 243 195 124 98.6 80.2 757 757 124 98.6 80.2 757 71.4 64.6 62.4 36.7 28.8 23.3 28.8 18.8	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C(DEG) (DEG) 0 5 10 15 20 0 5 10 15 20 15 20 30 35 30 35 55 60 65 70 75 55 60 65 70 95 100 105 110 115 120 110 115 120 110 115 120 110 115 120 110 115 120 110 115 120 105 100 105 1100 1105 120 135 135 135 135 135 135 135 135	3.54 3.60 3.69 285 1354 1184 720 580 531 460 292 292 198 88.6 60.2 292 21.99 2.95 2.89 2.95 2.89 2.95 3.57 3.91 4.48 6.17 7.89 8.27 8.61 7.89 8.45 7.83 6.51 7.83	3.43 3.49 3.52 300 1330 1064 669 611 498 556 250 131 81.9 40.9 40.9 40.9 40.9 40.9 40.9 40.9 40	3.47 3.29 3.22 315 1334 904 6699 685 578 533 390 317 2255 204 150 457 204 150 457 830 317 2255 204 150 457 830 457 830 4.52 5.54 5.53 4.52 4.06 5.33 4.52 5.33	4.99 3.57 3.00 1337 867 1128 639 668 602 540 452 269 219 181 132 93.6 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 93.5 70.8 132 95.5 70.8 132 95.5 70.8 132 95.5 70.8 135.5 70.8 10.5 10.6 10.5 10.5 10.6 10.5 10.5 10.5 10.5 10.5 10.5 10.5 10.5	3.28 3.14 3.09 345 1345 997 849 849 849 852 658 526 658 526 400 347 321 243 357 155 156 124 400 347 321 243 195 156 80.2 71.4 68.6 28.8 828.8 28.8 28.8 28.8 31 28.8 28.9	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 170 180 Table2 C(DEG) (DEG) 0 5 5 0 0 5 30 35 30 35 30 35 30 35 30 35 30 45 55 60 65 55 60 65 55 60 65 55 100 105 100 115 100 105 100 115 100 105 100 115 100 105 100 115 100 115 100 115 100 105 115 120 115 120 130 135 140 140 140 140 140 140 140 140	3.54 3.60 3.69 285 1354 1184 720 531 460 531 4402 292 198 88.6 60.2 41.9 2.95 3.57 2.89 2.95 3.57 3.91 4.48 6.17 7.83 6.21 8.45 8.45 8.45 1.51 8.45 8.45 1.51 8.45 8.45 1.51 8.45 8.45 1.51 8.45 8.45 1.51 8.45 8.45 1.51 8.45 8.51 8.45 8.51 8.45 8.51 8.45 8.51 8.51 8.51 8.51 8.51 8.51 8.51 8.5	3.43 3.49 3.52 300 1330 1064 818 669 661 669 669 661 356 250 81.9 4.01 4.11 5.16 6.35 4.36 6.11 4.01 4.01 4.01 4.01 4.01 4.01 4.01 4	3.47 3.29 3.22 315 1334 904 699 533 578 533 390 317 255 54 457 390 317 255 50 104 150 104 18.3 2204 150 104 8.34 2204 150 10.4 8.34 2.6 5.55 5.554 5.554 5.554 5.33 3.09 2.87	4.99 3.57 3.00 1337 867 1128 669 669 452 380 452 380 452 219 181 322 93.6 70.8 53.1 132 93.6 70.8 53.1 132 93.6 70.8 53.1 10.4 15.1 10.4 15.1 11.5 1 10.5 1 20.1 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 10.4 15.2 15.4 15.4 15.4 15.4 15.4 15.4 15.4 15.4	3.28 3.14 3.09 345 1345 997 848 890 852 658 526 400 347 321 243 347 321 155 156 124 98.6 26.4 36.7 28.8 80.2 71.4 64.6 26.4 36.7 28.8 8.6 3.3 18.6 14.7 7,72	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 (DEG) 0 5 10 15 20 0 5 10 15 20 25 30 35 30 35 30 35 30 35 40 45 55 60 65 70 75 75 80 85 80 85 80 85 90 95 100 105 110 115 120 115 120 115 120 135 140 145 145 145 145 145 145 145 145	3.54 3.60 3.69 1354 1184 1184 720 580 551 198 88.6 60.2 292 139 88.6 60.2 292 139 88.6 60.2 2.95 3.57 3.91 4.48 6.17 7.89 8.61 8.61 8.61 8.61 8.61 8.61 8.61 8.61	3.43 3.49 3.52 300 13300 1044 669 611 818 669 409 356 250 8498 409 356 131 81.9 22.9 6.35 3.90 4.01 4.11 5.16 6.518 6.58 6.58 6.58 6.58 6.58 6.58 6.58 6.5	3.47 3.29 3.22 315 1334 904 6699 685 578 685 578 300 317 225 225 2264 150 41.3 150 41.3 14.0 0 10.4 8.34 7.55 5.54 5.54 5.54 5.54 5.54 5.54 5.5	4.99 3.57 3.00 1337 867 540 452 540 452 269 219 3.66 222 269 219 3.66 53.1 132 93.66 53.1 132 93.66 53.1 132 93.60 15.1 11.5 15.1 11.5 9.20 27.3 2.73	3.28 3.14 3.09 345 1345 997 849 848 890 848 852 757 658 852 658 526 400 347 321 243 195 156 80.2 243 195 156 400 347 321 243 195 152 68 0.2 243 195 152 68 0.2 243 124 98.6 80.2 243 124 98.6 80.2 243 124 98.6 80.2 243 124 98.6 80.2 243 124 98.6 80.2 243 124 98.6 80.2 243 124 98.6 80.2 243 124 98.6 80.2 243 124 95 156 80.2 243 124 95 156 80.2 243 124 95 156 80.2 243 124 95 156 80.2 243 124 98.6 80.2 243 124 124 98.6 80.2 243 124 124 124 124 124 124 124 124 124 124	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 170 180 Table2 C(DEC) (DEC) 0 5 10 0 5 5 10 0 15 20 25 30 35 30 35 50 60 65 55 60 65 55 100 105 85 90 95 100 115 125 100 115 115 100 105 100 115 115	3.54 3.60 3.69 285 1354 1184 720 580 402 292 292 41.9 2.95 3.57 3.57 3.57 3.57 4.48 6.17 7 8.61 8.45 7.83 6.51 4.11 8.45 7.83 6.51 4.11 8.45 7.83 6.51	3.43 3.49 3.52 300 1330 1064 818 669 611 356 498 409 250 186 6.35 4.36 4.36 4.36 4.36 4.36 4.36 4.36 4.36	3.47 3.29 3.22 3.22 3.22 3.22 3.22 3.22 4.53 4.57 3.90 4.57 2.55 3.04 1.04 6.7.8 2.26 1.04 6.7.8 2.26 1.04 1.04 8.30 1.04 8.30 1.04 8.31 2.2.6 1.04 1.04 1.04 8.30 1.04 8.35 5.55 5.54 4.06 3.65 5.53 3.452 4.06 3.65 5.53 3.30 4.52 4.52 4.52 4.52 4.52 4.52 4.52 4.52	4.99 3.57 3.00 1337 1128 639 668 540 452 269 322 269 181 132 219 181 132 20.1 10.4 15.1 10.4 15.1 20.1 10.4 15.2 3.70 2.71 2.76	3.28 3.14 3.09 345 1345 997 849 849 849 852 757 658 400 347 221 243 195 124 98.6 261 243 195 124 98.6 26.4 36.7 28.8 23.3 18.8 14.7 28.8 8 26.3 31 7,72 28.8 8 2.3 3 18.6 3 7,72 2,93	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 170 170 170 170 170 170 180 Table2 C(DEG) 0 5 10 15 10 15 20 25 30 35 30 35 30 35 50 40 45 55 60 55 70 75 80 85 90 95 100 115 120 125 140 115 120 125 140 155 100 105 155 100 105 155 100 105 155 100 100	3.54 3.60 3.69 285 1354 1184 720 580 531 460 402 292 2.89 2.89 3.57 3.91 3.97 3.91 88.66 60.2 41.9 20.5 3.87 7.83 6.17 7.83 6.51 4.11 8.45 5.51 4.13 4.31 6.51 4.13 4.31 6.51 4.31 6.51 4.31 6.51 6.51 6.51 6.51 6.51 6.51 6.51 6.5	3.43 3.49 3.52 300 1330 1064 818 669 611 356 409 356 409 356 409 356 409 356 409 356 409 356 409 409 356 409 409 356 409 409 356 409 409 409 409 409 409 409 409 409 409	3.47 3.29 3.22 315 1334 904 669 669 665 578 457 390 457 204 457 104 67.8 104 67.8 104 67.8 104 8.34 7.55 5.54 10.4 8.34 14.0 0.4 8.34 14.0 10.4 8.34 14.0 10.4 8.34 14.0 10.4 8.34 14.0 10.4 8.34 14.0 10.4 8.34 14.0 10.4 8.34 14.0 10.4 8.34 14.0 10.4 8.34 14.0 10.4 8.34 14.0 10.4 10.4 10.4 10.4 10.4 10.4 10.	4.99 3.57 3.00 1337 1128 639 668 602 540 452 269 380 322 269 380 322 269 380 322 269 380 322 269 380 322 269 380 322 269 380 322 269 380 380 322 269 380 380 380 380 380 380 380 380 380 380	3.28 3.14 3.09 345 1345 997 849 849 852 757 658 400 347 243 195 526 400 347 124 98.6 80.2 21 243 156 124 98.6 80.2 21 243 156 124 98.6 80.2 2 771.4 64.6 47.6 2.8 3 18.6 80.7 2.8 3 8 .6 8 .6 8 .6 8 .6 8 .6 8 .6 8 .6	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 (DEG) 0 5 10 15 20 25 30 25 30 35 35 40 45 55 50 65 55 65 50 65 70 75 80 85 85 80 85 80 105 115 120 115 120 115 120 115 120 125 130 135 140 145 155 155	3.54 3.60 3.69 2285 1354 1354 720 580 402 292 292 198 139 88.6 60.2 41.9 2.95 2.89 2.95 7.3.91 4.48 6.17 7.89 8.27 8.61 7.89 8.45 7.89 8.45 7.83 6.17 7.89 8.45 7.39 7.39 7.39 8.45 7.39 7.39 7.39 7.39 7.39 7.39 7.39 7.39	3.43 3.49 3.52 300 1330 1064 818 669 611 356 498 409 250 186 6.35 4.36 4.36 4.36 4.36 4.36 4.36 4.36 4.36	3.47 3.29 3.22 3.32 3.32 3.32 3.22 3.22 5.78 5.78 5.78 5.78 5.78 5.78 5.78 5.78	4.99 3.57 3.00 1337 3867 1128 669 668 662 540 219 181 2269 219 181 132 269 219 181 132 269 540 219 53.1 132 29.5 2.0.1 10.4 15.1 11.5 9.23 3.75 2.71 2.76 2.771	3.28 3.14 3.09 345 1345 997 849 850 852 757 658 652 400 852 757 321 243 321 243 347 321 243 156 80.2 71.4 80.2 88.6 80.2 71.4 8.63 31.8 8.8 14.7 8.63 7.72 4.85 2.93 2.79	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 175 180 Table2 C (DEG) y (DEG) 0 5 10 15 20 15 20 30 35 30 35 30 35 55 60 65 70 75 55 60 65 70 95 100 105 110 115 120 125 125 120 125 125 120 125 125 125 125 125 125 125 125	3.54 3.60 3.69 2285 1354 1354 720 580 402 292 198 460 205 2.89 3.57 3.91 2.95 3.57 3.91 2.95 3.57 3.91 8.61 6.17 7.83 6.51 4.11 8.45 6.51 4.11 8.45 5.51 4.11 8.45 6.51 8.27 8.61 8.27 8.61 8.27 8.61 8.27 8.31 6.51 8.27 8.29 8.27 8.29 8.29 8.29 8.29 8.29 8.29 8.29 8.29	3.43 3.49 3.52 300 1330 1330 1330 46.9 81.9 46.9 81.9 46.9 81.9 46.9 6.35 4.36 4.36 4.36 4.31 5.16 6.58 6.60 5.79 4.54 4.40 5.58 6.60 5.79 4.54 4.06 3.59 4.297 2.90 2.79	3.47 3.29 3.22 3.22 3.22 3.22 3.22 3.22 3.22	4.99 3.57 3.00 1337 3867 1128 639 668 668 602 2380 322 2380 322 249 3.66 530 132 70.8 53.1 132 93.6 53.1 132 93.6 53.1 132 93.6 53.1 132 93.6 70.8 53.1 132 93.6 70.8 53.1 132 93.6 70.8 53.1 132 93.6 70.8 53.1 132 70.8 53.1 132 70.8 53.1 132 70.8 53.1 132 70.8 53.1 132 70.8 53.1 132 70.8 53.1 132 70.8 53.1 70.8 53.1 132 70.8 75.1 132 70.8 75.1 132 70.8 75.1 132 70.8 75.1 70.8 75.2 75.1 70.8 75.2 75.2 75.2 75.2 75.2 75.2 75.2 75.2	3.28 3.14 3.09 345 1345 997 849 848 890 852 658 658 658 658 658 658 620 400 347 321 156 80.2 43 195 156 80.2 43 195 156 80.2 43 195 152 80.6 80.2 43 124 98.6 80.2 43 124 98.6 80.2 43 124 98.6 80.2 43 124 98.6 80.2 43 124 98.6 80.2 43 124 98.6 80.6 124 98.6 80.6 124 98.6 80.6 124 98.6 80.6 124 98.6 80.6 124 124 124 124 124 124 124 124 124 124	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95
165 170 170 170 180 Table2 C(DE0) 0 5 10 0 5 10 0 5 10 15 20 25 30 35 40 45 55 60 55 60 65 70 75 80 85 90 110 115 120 125 130 110 115 120 125 140 155 140 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 155 160 165 160 165 170 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 175 170 170 175 170 170 175 170 170 175 170 170 170 170 170 170 170 170	3.54 3.60 3.69 2285 1354 720 580 402 292 198 139 88.6 60.2 41.9 2.95 2.89 2.95 2.89 2.95 3.91 4.48 6.07 7.89 8.27 3.91 4.48 6.07 7.89 8.27 3.91 4.48 6.07 7.89 8.27 3.91 4.48 6.07 7.89 8.27 3.91 4.48 6.07 7.89 8.27 8.27 8.27 8.27 8.27 8.27 8.27 8.27	3.43 3.49 3.52 3.00 1330 1330 1330 134 48 48 498 409 356 220 181 9 22.9 6.35 6.38 6.39 4.01 5.16 6.55 6.58 6.50 6.55 6.579 4.34 4.04 13 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.05 5.79 4.54 4.55 5.79 4.54 5.79 4.54 5.79 4.55 5.79 4.54 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.54 4.05 5.79 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 4.55 5.79 5.79 4.57 5.79 5.79 5.79 5.79 5.79 5.79 5.79 5	3.47 3.29 3.22 3.15 1334 699 685 578 578 578 578 578 578 578 578 578 5	4.99 3.57 3.00 1337 867 1128 668 662 540 322 269 229 3.6 70.8 32 269 229 3.6 70.8 33.1 132 132 132 132 132 132 132 132 15.1 10.4 15.1 10.5 1 29.5 20.1 10.5 11 29.5 20.5 20.5 20.5 20.5 20.5 20.5 20.5 20	3.28 3.14 3.09 345 1345 997 849 852 757 889 526 400 852 526 400 852 526 400 890 852 757 243 526 400 80.2 714 80.3 87 40 80.2 714 243 546 80.2 243 546 80.2 83 47 347 321 347 347 347 347 347 347 347 347 347 347	7.17 3.72	3.08	4.13	3.42	3.17	3.16	3.12	3.76	3.36	3.13	2.79 2.87	2.78 2.78	2.72	2.95

## **THD and PF Measurement Test Result:**

### **Electrical Measurement:**

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	<b>Power Factor</b>	iTHD
277.14	60	0.2070	52.57	0.9164	13.32







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NVLAP LAB CODE 600150-0

Report No: NTCR17060039 Report Version: V1.1

Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2016-12-03	2017-12-02
NTC-F01-006	2.0 meter Integrating Sphere	2016-12-03	2017-12-02
NTC-F01-013	Standard Lamp	2016-12-27	2017-12-26
NTC-F01-031	Digital Power Meter	2016-12-05	2017-12-04
NTC-F01-019	Temperature & Humidity Meter	2016-11-28	2017-11-27





\*\*\*\*\*END OF DATASHEET\*\*\*\*