



## 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

# Linear Ambient Lumianire

Model name(s): 546762##-1

Representative (Tested) Model: 54676241

Model Difference: ##=41-50 intends CCT is 4000K

Prepare By:

Loslow

Engineer: Leo Liu Date: 2018-04-11

Review By:

incer wen

Technical Lead: Vincent Yuan Date: 2018-05-02

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:       546762##-1(##=41-50)         Product type:       Linear Ambient Luminaire         Rating Input:       AC120-277V, 50/60Hz, 34W         Declared CCT:       4000K         Declared Light output:       3600lm         LED Manufacturer:       SAMSUNG	
Model Number:       546762##-1(##=41-50)         Product type:       Linear Ambient Luminaire         Rating Input:       AC120-277V, 50/60Hz, 34W         Declared CCT:       4000K         Declared Light output:       3600Im         LED Manufacturer:       SAMSUNG	
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Declared CCT: 4000K Declared Light output: 3600lm LED Manufacturer: SAMSUNG	
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LED Manufacturer: SAMSUNG	
LED Model: SPMWHX228FD5WAW0XX	
LED Quantity: 242 pcs	
Forward current of LED Chip: 160 mA	
Date of Receipt Samples: 2018-04-01	
Quantity of Receipt Samples: 2	
Sample Number: 180401002-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: 2018-05-02	
Revised Date of Test Report: N/A	
Test Report No.: NTCR18040010	
Remark (If applicable) N/A	





<b>Test Specifications:</b>	
Date of Test`	2018-04-11
Test item	1. Total Luminous Flux
	2. Luminous Distribution Intensity
	3. Luminous Efficacy
	4. Correlated Color Temperature
	5. Color Rendering Index
	6. Chromaticity Coordinate
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  $\pm 1^{\circ}$  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.





**Integrating Sphere Test Results** 

Test Condition:											
Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time							
24.9 °C	51 %	Face Down	90 mins	25 mins							
Electric	Electrical Data:										

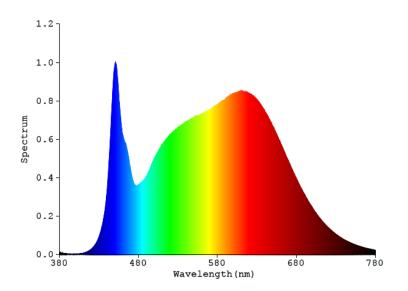
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	<b>Power Factor</b>
120.0	60	0.2870	34.02	0.9873

**Color Data:** 

Parameter	Result
CCT(K)	3974
Color Rendering Index (CRI)	93.3
R9	64
Chromaticity, x	0.3812
Chromaticity, y	0.3760
Chromaticity u'	0.2259
Chromaticity v'	0.5014
Duv	-0.00056

Special Color Rendering										
R1	94	R9	64							
R2	97	R10	90							
R3	97	R11	93							
R4	93	R12	73							
R5	93	R13	95							
R6	94	R14	98							
R7	94	R15	91							
R8	86	-	-							

## Spectrum Diagram:





NVLAP LAB CODE 600150-0

Report No: NTCR18040010 Report Version: V1.1

**Goniophotemeter Test Results:** 

Test Condition:											
Test Ambient	Test Humidity	Orientation	Stabilization Time	Test Time							
25.2 °C	50 %	Face Down	90 mins	25 mins							
Electric	al Data:										

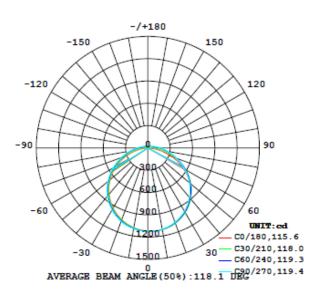
Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	<b>Power Factor</b>
120.0	60	0.2870	34.02	0.9873

Goniophotometer Data:

Parameter	Result
Total Luminous (lm)	3746.43
Total Luminous per foot (lm/ft)	936.61
Luminous Efficacy (lm/w)	110.12
Zonal Lumens Distribution (0-60°)	70.2%
Beam Angle (°)	118.1

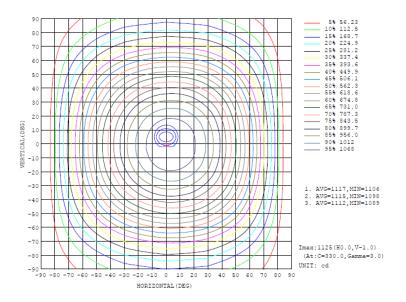
## **Luminous Intensity Distribution Diagram:**

### LUMINOUS INTENSITY DISTRIBUTION DIAGRAM













٣	co	C45	C90	C135	C180	C225	C270	C315	Y	Φ zone	<pre>     total </pre>	<li>1um, lam</li>
10	1115	1116	1112	1099	1091	1096	1106	1116	0- 10	106.3	106.3	2.84,2.84
20	1073	1076	1063	1042	1027	1038	1055	1071	10- 20	306.5	412.8	11,11
30	996.2	1000	981.7	955.2	933.4	946.2	965.1	991.5	20- 30	469.4	882.2	23.5,23.5
40	882.3	890.6	867.8	838.2	811.8	826.9	847.4	87€.7	30- 40	574.2	1456	28.9,28.9
50	734.6	750.6	729.8	695.8	663.2	681.6	702.7	732.4	40- 50	607.5	2064	55.1,55.1
60	552.7	585.2	571.5	532.9	490.3	516.9	541.7	561.5	50- 60	564.5	2628	70.2,70.2
70	344.0	402.7	413.0	360.8	299.3	343.1	380.8	376.2	60-70	452.0	3080	82.2,82.2
80	127.0	231.5	274.1	204.1	105.5	189.5	245.2	206.6	70- 80	296.9	3377	90.1,90.1
90	0.1159	114.9	169.9	101.5	0.1684	90.63	147.0	96.13	80- 90	152.4	3531	94.2,94.2
100	0.2604	63.59	104.6	57.94	0.5363	50.65	88.57	52.09	90-100	76.68	3607	96.2,96.2
110	0.6851	47.29	73.30	43.81	0.8594	38.96	63.04	39.88	100-110	48.23	3656	97.6,97.6
120	1.075	37.34	59.74	34.98	1.235	30.85	51.69	31.48	110-120	35.30	3691	98.5,98.5
130	1.220	26.78	43.36	25.15	1.553	22.92	38.29	22.44	120-130	24.92	3716	99.2,99.2
140	1.509	20.29	32.21	19.37	1.837	16.71	27.92	16.67	130-140	15.74	3732	99.6,99.6
150	1.433	12.85	22.07	12.49	1.475	11.38	19.11	11.12	140-150	9.251	3741	99.9,99.9
160	1.359	6.407	12.15	6.331	1.528	5.964	10.58	5.887	150-160	4.189	3745	100,100
170	1.350	2.087	3.477	1.879	1.489	1.989	3.419	2.245	160-170	1.200	3746	100,100
180	1.752	1.744	1.230	1.754	1.751	1.746	1.228	1.755	170-180	0.1749	3746	100,100
DEG		LUN	INOUS INTE	NSITY:cd	Less than	35% Percent	t = 15.8 %			UNI	T:lm	





## NVLAP LAB CODE 600150-0

**Luminous Distribution Intensity Data:** 

C (DEG)		15	30	45	60	75	90	105	100	1.75	150	165	180	105	210	0.00		255	270
(DEG)		-						-	120	135				195		225	240	-	L
0	1119	1119	1119	1120		1122	1122	1123	1124	1123	1122	1120	1119	1119	1119			1122	112
5	1122	1122	1123	1123	1123	1123	1122	1120	1117	1115	1113	1111	1109	1109	1111	1112	1115	1116	111
10	1115	1118	1118	1117	1115	1114	1112	1108	1103	1098	1095	1092	1091	1091	1093		1099	1102	110
15	1098	1100	1101	1100	1098	1095	1090	1086	1080	1075	1069	1066	1064	1064	1066			1079	108
20	1073	1078	1079	1076	1072	1068	1063	1055	1047	1041	1036	1030	1027	1028	1033	1038	1043	1049	105
25	1038	1045	1047	1044	1038	1032	1025	1017	1010	1003	997	990	985	985	989	994	1001	1007	101
30	996	1003	1005	1002	995	989	982	972	963	955	948	939	933	935	939	946	953	959	965
35	942	951	955	951	944	937	929	917	906	897	890	881	875	877	882	889	897	904	911
40	883	892	896	892	885	877	868	858	847	838	829	819	812	813	819	827	835	841	847
45	813	824	829	826	819	812	802	791	780	769	760	749	741	743	750	757	765	771	777
50	735	748	755	753	746	739	730	718	706	696	686	673	663	666	673	681	690	696	703
55	647	665	674	674	669	661	651	640	628	617	606	590	579	582	592	601	611	616	622
60	554	573	585	588	585	580	572	560	546	533	520	502	490	495	506	517	528	535	542
65	452	475	491	498	499	497	490	478	463	448	431	411	397	402	416	430	443	452	459
70	344	371	391	406	414	417	413	400	382	361	340	315	299	307	325	344	362	373	381
75	234	265	292	317	334	342	339	327	306	279	249	218	199	211	235	262	287	301	308
80	127	166	201	235	262	274	274	262	239	206	169	129	106	124	158	191	221	238	245
85	38.3	85.8	129	169	201	216	218	206	183	147	106	60.5	32.4	56.2	97.7	134	166	184	191
90	0.12	40.1	78.6	119	151	167	170	160	138	104	65.2	24.5	0.17	21.2	58.5	92.8	123	140	147
95	0.14		50.5	84.1	114	129	133	123	104	74.6	43.2	15.6	0.34	13.3	38.2		_	106	113
100	0.26	18.4	39.1	65.0	88.1	101	105	96.7	81.0	58.6	34.9	12.9	0.54	11.1	31.0			82.9	88.
105	0.47	17.5	35.0	54.7	71.7	81.9	85.2	79.2	67.1	50.1	31.5	12.9	0.77	10.7	28.2		_	67.9	72.
110	0.69	16.0	31.5	48.6	63.1	71.0	73.3	69.1	59.7	44.7	27.9	10.9	0.86	9.70	25.3			60.1	63.
115	0.86	10.0	25.8		57.2	64.3	66.0	62.7	59.7	39.1	27.9	8.60	1.06	7.84	25.3			54.8	57.
				42.5				-			<u> </u>								
120	1.08	11.3	23.1	38.2	51.5	58.1	59.7	56.8	49.2	35.5	20.8	8.15	1.23	7.09	18.5		<u> </u>	49.5	51.
125	1.17	10.4	20.5	32.5	43.4	50.7	53.6	49.2	40.8	30.1	18.9	7.85	1.40	6.23	15.9			43.7	46
130	1.22	9.52	18.0	27.3	35.5	41.2	43.4	40.0	33.6	25.5	16.7	7.17	1.55	6.66	15.5		30.3	35.7	38.
135	1.42	8.05	15.3	24.2	31.9	35.3	36.0	34.5	30.4	22.8	14.4	6.34	1.71	5.49	12.7			30.5	31.
140	1.51	7.02	13.2	20.7	27.4	31.1	32.2	30.5	26.4	19.7	12.4	5.67	1.84	4.87	10.7		22.7	26.4	27.
145	1.25	5.27	10.2	16.7	22.7	26.2	27.5	25.8	22.0	15.9	9.59	4.26	1.42	4.01	8.99		19.9	22.6	23.4
150	1.43	4.01	7.64	13.0	18.1	21.0	22.1	20.7	17.6	12.6	7.38	3.45	1.47	3.27	6.92	1		18.2	19.
155	1.50	2.75	5.18	9.33	13.6	16.4	17.7	16.3	13.3	9.06	4.95	2.59	1.69	2.72	5.03			14.1	15.0
160	1.36	1.89	3.41	6.36	9.40	11.3	12.2	11.3	9.40	6.27	3.26	1.89	1.53	2.09	3.48	5.95	8.45	9.95	10.6
165			2.09	3.72	5.51	6.82	7.46	6.87	5.56	3.53	1.71	1.32	1.48	1.47	1.92	3.56	5.32	6.37	6.82
	1.36	1.39										1.44	1.49	1.54	1.68	1.93	2.30	2.94	3.4
170	1.36	1.39	1.55	2.05	2.63	3.20	3.48	2.96	2.25	1.80	1.50								
		1.34													1.87			1.75	
170 175 180	1.35	1.34	1.55	1.69	1.70	1.71	1.71	1.64	1.59	1.62	1.50	1.76	1.83	1.88		1.75			1.8
170 175 180  C (DEG)	1.35 1.73 1.75	1.34 1.70 1.76	1.55 1.69 1.76	1.69 1.78 330	1.70 1.73 345	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180  (DEG) 0	1.35 1.73 1.75 285 1123	1.34 1.70 1.76 300	1.55 1.69 1.76 315	1.69 1.78 330 1122	1.70 1.73 345 1121	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5	1.35 1.73 1.75 285 1123 1120	1.34 1.70 1.76 300 1124 1123	1.55 1.69 1.76 315 1123 1124	1.69 1.78 330 1122 1125	1.70 1.73 345 1121 1124	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 10	1.35 1.73 1.75 285 1123 1120 1110	1.34 1.70 1.76 300 1124 1123 1114	1.55 1.69 1.76 315 1123 1124 1116	1.69 1.78 330 1122 1125 1117	1.70 1.73 345 1121 1124 1117	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15	1.35 1.73 1.75 285 1123 1120 1110 1090	1.34 1.70 1.76 300 1124 1123 1114 1096	1.55 1.69 1.76 315 1123 1124 1116 1099	1.69 1.78 330 1122 1125 1117 1100	1.70 1.73 345 1121 1124 1117 1100	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 10 15 20	1.35 1.73 1.75 285 1123 1120 1110 1090 1061	1.34 1.70 1.76 300 1124 1123 1114 1096 1066	1.55 1.69 1.76 315 1123 1124 1116 1099 1071	1.69 1.78 330 1122 1125 1117 1100 1075	1.70 1.73 345 1121 1124 1117	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 20 25	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023	1.34 1.70 1.76 300 1124 1123 1114 1096 1066	1.55 1.69 1.76 315 1123 1124 1116 1099 1071	1.69 1.78 330 1122 1125 1117 1100 1075	1.70 1.73 345 1121 1124 1117 1100	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 10 15 20	1.35 1.73 1.75 285 1123 1120 1110 1090 1061	1.34 1.70 1.76 300 1124 1123 1114 1096 1066	1.55 1.69 1.76 315 1123 1124 1116 1099 1071	1.69 1.78 330 1122 1125 1117 1100 1075	1.70 1.73 345 1121 1124 1117 1100 1076	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 (DEG) (DEG) 0 5 10 15 20 25 30 35	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923	1.34 1.70 1.76 300 1124 1123 1114 1096 1066 1032 986 934	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 5 10 10 20 25 20 25 30 35 40	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859	1.34 1.70 1.76 300 1124 1123 1114 1096 1066 1032 986	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 (DEG) 0 5 5 10 15 20 25 30 35 40 45	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859 788	1.34 1.70 1.76 300 1124 1123 1114 1096 1066 1032 986 934 870 800	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941 878 810	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 20 25 30 35 35 40 45 50	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859 788 714	1.34 1.70 1.76 300 1124 1123 1114 1096 1066 1032 986 934 870	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941 878 810 734	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817 739	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817 739	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 (DEG) 0 5 5 10 15 20 25 30 35 40 45	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859 788	1.34 1.70 1.76 300 1124 1123 1114 1096 1066 1032 986 934 870 800	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941 878 810	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 20 25 30 35 35 40 45 50	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859 788 714	1.34 1.70 1.76 300 1124 1123 1114 1096 1032 986 934 870 800 726	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941 878 810 734	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817 739	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817 739	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 (DEG) 0 5 10 15 15 20 25 30 40 45 55 55	1.35 1.73 1.75 285 1123 1120 1090 1061 1090 1061 1093 975 923 859 788 714 633	1.34 1.70 1.76 300 1124 1123 1114 1096 1066 1052 986 934 870 800 726 644	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941 878 810 734 652	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817 739 655	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817 739 654	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 (DEG) 0 5 10 15 20 25 30 35 40 45 55 60	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859 788 714 633 551	1.34 1.70 1.76 300 1124 1123 1114 1096 1032 986 934 934 870 800 726 644 559	1.55 1.69 1.76 315 1123 1124 1116 1036 993 941 878 810 734 652 563	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817 739 655 564	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817 739 654 561	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 10 5 20 25 30 35 40 55 50 55 60 65	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859 718 714 633 551 466	1.34 1.70 1.76 300 1124 1123 1114 1096 1032 986 934 870 800 726 644 559 471	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941 878 878 810 734 652 563 471	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817 739 655 564 468	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817 739 654 561 461	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 20 15 30 35 30 40 45 55 60 65 70	1.35 1.73 1.75 285 1123 1120 1110 1090 1090 975 923 859 788 714 633 551 466 386	1.34 1.70 1.76 300 1124 1123 1114 1096 1066 1066 1066 986 934 870 800 726 644 559 471 386	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941 878 810 734 652 563 471 378	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817 739 655 564 468 367	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817 739 654 561 461 356	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C(DEG) 0 5 5 10 15 20 20 25 30 30 35 40 45 55 55 56 60 65 70 75	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859 788 714 633 551 466 386 310	1.34 1.70 1.76 300 1124 1123 1114 1096 1032 986 800 726 644 870 800 726 644 471 386 305	1.55 1.69 1.76 315 1123 1124 1116 1099 993 9941 878 810 734 652 563 471 378 288	1.69 1.78 330 1122 1125 1117 1100 1075 997 946 883 817 739 655 564 367 267 178	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 817 739 654 461 356 250	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 20 30 15 25 30 45 45 55 60 75 75 80	1.35 1.73 1.75 285 1123 1120 1090 1061 1023 975 923 859 788 714 633 551 466 310 245	1.34 1.70 1.76 300 1124 1123 1114 1036 1032 934 870 800 934 870 800 471 386 644 559 471 386 539 471	1.55 1.69 1.76 1123 1124 1123 1124 1099 1071 1036 993 941 1036 993 941 878 810 734 652 563 471 378 8288 209 145	1.69 1.78 330 1122 1125 1117 1100 1075 997 946 883 817 739 946 883 817 739 655 564 468 367 267 178	1.70 1.73 345 1121 1124 1117 1100 1076 885 817 739 654 461 356 250 152	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 20 25 30 35 40 55 60 65 55 60 65 75 80 85	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 859 788 975 466 336 466 3310 245 189	1.34 1.70 1.76 300 1124 1123 1114 1036 1032 936 934 870 800 726 644 559 471 386 305 235 175 129	1.55 1.69 1.76 1123 1124 1116 1099 1071 1036 993 941 878 810 734 652 563 471 378 209 145 98.9	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 817 739 946 8655 564 468 367 267 178 109 63.2	1.70 1.73 345 1121 1124 1117 1000 1076 1040 998 805 805 805 805 805 805 805 80	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 5 10 15 20 20 20 20 20 33 33 35 30 35 35 55 50 65 50 65 70 75 80 85 85 85	1.35 1.73 1.75 285 1123 1120 1010 1090 1061 1023 859 788 714 633 551 466 386 310 245 189 144	1.34 1.70 1.76 300 1124 1123 1114 1096 1032 986 934 870 800 726 644 870 800 726 644 930 726 644 930 726 726 737 738 70 870 870 870 870 870 870 870 870 870	1.55 1.69 1.76 1123 1124 1116 1099 1071 1036 993 993 993 993 993 993 993 993 993 9	1.69 1.78 330 1122 1117 1100 1075 1039 997 946 883 817 739 946 655 564 468 367 267 178 468 367 267 178 409 939 939 939 939 939 939 937 946 838 817 739 946 838 817 739 946 855 564 468 367 267 178 109 838 109 838 109 838 109 109 109 109 109 109 109 109	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 946 885 946 885 946 885 561 461 356 250 152 74.4 31.3	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG)	1.35 1.73 1.75 285 1123 1120 1110 1090 923 975 923 714 633 551 859 714 633 551 859 714 633 10 245 189 144 109	1.34 1.70 1.76 300 1124 1123 1114 1036 1036 1036 1036 800 934 870 800 934 870 800 726 644 559 471 386 525 175 129 94.8 72.5	1.55 1.69 1.76 1123 1124 1116 1099 1071 1036 993 941 878 878 878 878 878 878 878 878 879 1075 1036 993 941 878 878 878 809 145 288 209 145 53.0	1.69 1.78 330 1122 1125 1117 1100 1075 1039 997 946 883 8817 739 655 564 468 817 739 655 564 468 367 267 178 109 463.2 39.9 31.7	1.70 1.73 345 1121 1124 1117 1000 1076 1040 998 998 998 946 885 817 739 946 654 561 461 356 250 152 74.4 31.3 18.2	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 (DEC) 0 5 5 10 15 20 25 30 35 40 45 55 60 65 55 60 65 70 75 80 85 90 95 100	1.35 1.73 1.75 285 1123 1120 1090 1061 1023 975 923 859 788 714 663 310 245 189 144 109 109	1.34 1.70 1.70 1.76 300 1124 1123 1114 1036 1036 1036 1036 1032 986 407 800 726 471 386 441 559 471 385 235 175 129 94.8 72.5 60.1	1.55 1.69 1.76 1.23 1123 1124 1116 993 1071 1036 9941 878 810 734 810 734 810 734 810 734 810 734 810 734 810 734 810 734 810 734 810 810 810 815 815 815 815 815 815 815 815	1.69 1.78 330 1122 1125 1117 1100 1075 997 946 803 817 739 655 564 468 367 178 109 63.2 267 178 109 63.2 39.9 31.7 28.8	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 885 8817 739 654 461 356 250 152 74.4 18.2 19.2 11.	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 25 30 25 30 25 30 35 40 45 55 50 65 65 65 70 75 80 85 100 105 105 105 10 105 105 105	1.35 1.73 1.75 285 1123 1120 1090 1061 1090 1061 1093 975 923 859 788 778 778 778 787 788 714 633 551 189 144 109 84.2 66.9 60.8	1.34 1.70 1.76 300 1124 1123 1124 1026 934 870 800 726 644 559 934 800 726 644 559 934 870 175 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 94.8 72.5 129 129 129 129 129 129 129 129	1.55 1.69 1.76 1123 1124 1116 1099 1071 1036 993 941 878 810 734 878 810 734 878 810 734 878 8209 145 98.9 68.8 53.0 945.5 40.9	1.69 1.78 330 1122 1125 1117 1009 997 635 564 468 367 267 178 109 63.2 39.9 31.7 28.8 25.9	1.70 1.73 345 1121 1124 1117 1100 998 946 885 817 739 654 561 461 356 152 74.4 31.3 18.2 14.8 14.3	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 20 25 30 30 35 50 55 60 65 55 80 85 80 85 90 100 105 110	1.35 1.73 1.75 285 1123 1120 1090 1061 1023 859 788 859 788 8551 4633 551 466 310 245 189 84.2 66.9 84.2 66.8 55.4	1.34 1.70 1.70 1.76 300 1124 1123 1114 1036 1032 986 934 870 800 726 644 559 471 386 644 559 471 129 94.8 72.5 60.1 129 94.8 72.5 53.8 48.9	1.55 1.69 1.76 1123 1124 1123 1124 1036 1099 1071 1036 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 810 810 810 810 810 810 810 810 81	1.69 1.78 330 1122 1125 1127 1127 1100 1075 1039 946 883 817 3997 946 883 817 739 655 564 468 109 655 564 109 63.2 39.9 31.7 28.8 31.7 28.9 21.2 25.9 21.1	1.70 1.73 345 1121 1124 1117 11076 1040 998 885 817 739 654 461 356 250 152 74.4 31.3 18.2 14.8 14.3 13.0	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 10 15 225 30 35 40 45 55 55 55 55 55 55 55 55 55	1.35 1.73 1.75 285 1123 1120 1090 1061 1023 859 788 859 788 8551 4633 551 4633 551 466 310 245 189 84.2 66.9 85.4	1.34 1.70 1.70 1.76 300 1124 1123 1114 1036 1066 934 870 800 726 644 870 800 726 644 934 870 800 726 644 934 870 800 726 644 934 870 800 726 644 934 870 800 726 644 934 870 800 726 644 934 870 800 726 644 934 870 800 726 644 934 870 800 726 644 938 870 800 726 644 870 800 726 644 870 800 726 644 870 800 726 644 870 800 726 644 870 800 726 644 870 800 726 644 870 800 725 94.8 72.5 60.1 53.8 84.9 94.8 72.5 60.1 53.8 84.9 94.8 72.5 60.1 53.8 84.9 94.8 72.5 60.1 53.8 84.9 94.8 72.5 60.1 73.8 84.9 94.8 72.5 60.1 73.8 84.9 94.8 72.5 60.1 73.8 84.9 94.8 72.5 84.9 94.8 72.5 84.9 94.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 84.8 72.5 75.9 75.9 75.8 75.8 75.9 75.8	1.55 1.69 1.76 315 1123 1124 1116 1099 1071 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 1036 993 941 1036 106 1036	1.69 1.78 330 1122 1125 1117 1039 997 1039 9946 883 817 739 946 883 817 739 946 883 817 739 946 883 817 739 946 883 817 739 946 883 817 739 946 883 817 739 946 883 817 739 946 836 817 739 946 836 817 739 946 836 817 739 946 836 817 739 946 836 817 739 946 837 817 739 946 838 817 739 946 836 817 739 946 836 817 739 946 836 817 739 946 836 817 739 946 836 817 739 946 836 817 739 836 817 739 836 837 836 837 836 837 836 837 836 837 837 837 837 837 837 837 837	1.70 1.73 345 1121 1124 1117 11076 1040 998 805 817 739 654 461 356 250 152 74.4 31.3 18.2 14.8 13.0 10.0	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 5 10 15 225 30 35 40 45 55 60 65 55 60 65 75 70 75 80 85 90 95 100 115 125 100 115 125 100 115 120 125 100 115 120 120 120 120 120 120 120 120	1.35 1.73 1.75 285 1123 1120 1120 1120 1120 1050 1061 1061 1062 975 859 788 714 386 310 245 189 84.2 68.9 60.8 55.4 49.9 43.8	1.34 1.70 1.70 1.76 300 1124 1123 1114 1086 1032 986 1032 986 1032 986 1032 986 1055 1055 175 129 94.8 72.5 94.8 72.5 129 94.8 73.8 129 94.8 73.8 129 94.8 73.8 129 94.8 73.8 129 94.8 73.8 139.8 149.8 14	1.55 1.69 1.76 315 1123 1124 1123 1124 1036 993 941 878 993 941 878 800 734 652 563 471 378 209 145 98.9 68.8 53.0 945.5 40.9 35.8 20.9 21.2 27.2	1.69 1.78 330 1122 1125 1127 1100 1075 1039 946 803 817 739 655 564 468 367 267 178 468 367 267 178 267 273 997 83.9 21.2 28.8 25.9 21.1 10.9 10.5 91 10.9 10.5 10.9 10.5 10.9 10.5 10	1.70 1.73 345 1121 1124 1127 1124 1127 1124 1127 1124 1127 1124 1127 1124 1127 1	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 25 30 25 30 25 30 35 40 45 55 60 65 70 75 80 85 100 105 115 105 105 105 105 10	1.35 1.73 1.75 285 1123 1120 1110 1090 1061 1023 975 923 975 923 975 923 975 923 975 923 923 925 1023 975 923 923 925 1029 923 923 923 923 923 923 923 9	1.34 1.70 1.76 300 1124 1123 1114 1086 1032 986 934 870 800 726 644 559 934 870 726 644 559 94.8 72.5 60.1 129 129 43.9 37.8 43.9 37.8 30.7	1.55 1.69 1.76 1123 1124 1116 1099 993 941 1071 1036 993 941 0378 810 734 810 734 810 734 820 941 935 8378 809 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 563 3788 209 145 553 145 145 145 145 145 145 145 145	1.69 1.78 330 1122 1125 1127 1100 1075 997 946 883 887 883 887 739 946 63.2 39.9 31.7 28.8 39.9 31.7 28.9 25.9 21.1 19.0 15.9 15.	1.70 1.73 345 1121 1124 1121 1121 1121 100 1076 1040 998 997 998 946 885 817 739 654 561 561 562 563 152 74.4 31.3 18.2 14.3 13.0 10.0 9.17 7.25	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 5 10 15 5 22 30 30 35 50 55 60 65 55 80 85 90 100 110 110 125 110 120 120 120 120 120 120 120	1.35 1.73 1.75 285 1123 1120 1110 1090 975 923 955 1061 1062 923 955 714 633 551 4666 386 386 310 245 55.4 49.9 43.8 6.0 30.6	1.34 1.70 1.70 1.76 300 1124 11123 1114 1096 1032 986 1032 986 644 559 934 870 800 726 644 559 129 94.8 94.8 175 129 94.8 105 129 94.8 105 105 129 94.8 105 105 105 105 105 105 105 105	1.55 1.69 1.76 315 1123 1124 1116 1099 993 941 1071 1036 993 941 1077 1036 993 941 1077 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 993 941 1036 937 941 1036 938 941 1036 938 941 1036 939 941 1036 937 941 1036 938 941 1036 938 941 1036 1036 939 941 1036 1036 1036 1037 1036 1036 1037 1036 1036 1037 1036 1036 1036 1037 1036 1036 1036 1036 1036 1037 1036 1036 1036 1037 1036 1036 1037 1036 1036 1036 1036 1037 1036 1056 1056 1	1.69 1.78 330 1122 1125 1125 1127 1100 1075 997 946 883 807 739 946 883 807 739 655 468 367 739 655 468 367 739 93.9 31.7 28.8 25.9 21.1 19.0 15.9 21.1 19.0 15.9 21.1 19.0 15.9 21.1 19.0 15.9 21.1 19.0 15.9 21.1	1.70 1.73 345 1121 1124 1117 1100 998 946 885 885 887 739 654 461 356 250 74.4 31.3 18.2 14.8 14.3 13.0 9.17 7.25 6.25	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 225 30 35 40 45 45 45 55 55 60 65 55 80 85 90 95 90 100 105 115 120 20 215 100 15 215 20 20 20 25 30 35 35 35 35 35 35 35 35 35 35	1.35 1.73 1.75 285 1123 1120 1090 1061 1023 923 859 923 859 975 923 859 975 923 859 144 109 84.2 859 144 109 84.2 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 49.3 85.4 40.3 85.4	1.34 1.70 1.70 1.76 300 1124 1123 1114 1123 1036 1032 986 934 870 726 644 725 755 875 755 875 755 870 727 870 727 870 727 870 727 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 870 727 727 870 727 727 727 727 727 727 727 7	1.55 1.69 1.76 1123 1124 1124 1124 1124 1124 1124 1039 993 941 878 810 734 652 563 471 288 209 145 563 471 288 209 145 53.0 68.8 53.0 28.8 20.9 145 53.2 12.2 22.8 20.2 16.9 20.2 16.9 20.2 16.9 20.2 16.9 20.2 21.6 20.2 21.6 20.2 21.6 20.2 21.6 20.2 21.6 20.2 21.6 20.2 20.2 21.6 20.2 20.2 21.6 20.2	1.69 1.78 330 1122 1112 1125 1117 1000 997 946 803 803 807 739 946 655 564 468 367 178 109 997 946 939.9 31.7 39.9 31.7 267 178 109 103 997 946 367 267 178 103 997 946 367 267 178 103 997 946 367 267 178 103 997 946 367 267 178 103 997 946 367 267 178 103 976 946 367 267 178 103 977 946 367 267 178 103 103 103 103 103 103 103 103	1.70 1.73 345 1121 1124 1117 1100 1076 1040 998 817 739 946 885 817 739 946 885 817 739 946 856 1040 998 805 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 855 817 739 946 857 845 817 739 946 857 845 817 739 946 857 845 817 739 946 857 845 817 739 946 857 845 817 739 946 857 856 152 74.4 13.3 13.3 13.3 13.3 13.0 10.0 10.0 152 74.4 13.0 10.0	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 10 15 10 22 23 30 35 50 55 50 45 55 60 45 55 60 65 75 80 85 90 105 110 115 120 125 100 135 145 120 125 100 135 145 120 125 100 135 100 100 100 100 100 100 100 10	1.35 1.73 1.75 285 1123 1120 1090 1061 1023 923 859 788 714 633 551 859 744 633 310 859 144 109 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 84.2 68.9 85.4 49.9 85.4 49.9 85.4 49.9 85.4 49.9 85.4 49.9 85.4 49.9 85.4 49.9 85.4 49.9 85.4 49.9 85.4 49.9 85.4 85	1.34 1.70 1.76 300 1124 1123 986 934 1032 986 934 870 870 870 870 870 870 870 870	1.55 1.69 1.76 1123 1124 1116 91071 1036 810 734 652 563 993 993 993 993 993 993 993 993 993 9	1.69 1.78 330 1122 1125 1125 1125 1039 997 1039 9946 883 807 3096 555 564 109 655 564 109 655 564 109 109 109 109 109 109 109 109	1.70 1.73 345 1121 1124 1117 1100 998 946 541 561 461 356 250 152 74.4 13.0 10.0 9.152 74.4 13.0 10.0 9.7 7.25 5.49 4.36	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 5 10 15 20 25 30 35 50 55 60 65 55 60 65 55 60 65 55 80 85 90 95 100 115 120 125 100 15 10 10 15 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 10 10 10 10 10 10 10 10	1.35 1.73 1.75 285 1123 1120 1110 1050 1061 1023 975 923 859 714 466 386 310 245 189 84.2 66.9 66.9 66.9 66.9 66.9 66.9 66.9 66.9 66.9 66.9 66.9 66.9 66.9 86.0 22.4 18.2	1.34 1.70 1.76 300 1124 1123 1114 1036 1032 934 870 800 726 635 934 870 800 726 644 559 471 386 305 235 175 129 94.8 60.1 129 94.8 60.1 129 53.8 80.7 27.5 129 94.8 129 95.8 175 129 129 129 129 129 129 129 129	1.55 1.69 1.76 1.23 1124 1124 1125 1123 1124 1099 993 9941 878 878 878 878 878 878 878 87	1.69 1.78 330 1122 1125 1125 1125 1039 997 1039 9946 883 817 739 655 564 468 367 267 178 655 564 468 307 267 179 63.2 39.9 28.8 25.9 21.1 19.0 15.2 10.9	1.70 1.73 345 1121 1124 1117 11076 1040 998 885 887 654 561 152 152 152 152 152 152 152 15	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C(DEG) 0 5 10 15 25 30 40 45 55 50 65 50 65 50 65 50 65 80 65 90 95 90 105 115 120 105 115 120 105 105 105 105 105 105 105 10	1.35 1.73 1.75 1.75 1.23 1.23 1.120 1.090 1.061 1.090 1.061 1.090 1.061 1.090 1.061 1.090 1.061 1.051 1.090 1.061 1.051 1	1.34 1.70 1.76 300 1124 1123 986 934 1046 934 936 936 937 980 934 937 986 934 937 936 936 937 937 938 937 937 938 938 938 938 938 938 938 938	1.55 1.69 1.76 1123 1124 1116 1039 1071 1036 878 810 734 652 732 810 734 652 732 810 734 652 732 810 734 652 732 810 734 652 732 810 734 652 732 810 734 735 732 732 732 732 732 732 732 732 732 732	1.69 1.78 330 1122 1125 1117 1009 997 997 997 997 997 997 997	1.70 1.73 345 1121 1124 1117 1026 1076 1040 998 946 885 817 739 654 461 356 461 356 561 461 356 152 74.4 152 74.4 152 74.4 31.3 152 74.4 152 561 152 74.4 152 561 152 74.4 31.3 152 152 74.4 31.3 152 152 74.4 31.3 152 152 74.4 31.3 152 152 74.4 31.3 152 152 74.5 152 152 152 152 152 152 152 15	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 10 15 10 15 220 25 30 35 50 35 50 45 50 35 55 60 65 65 65 65 75 80 85 90 100 110 115 120 120 125 130 110 115 130 135 145 145 150 110 115 120 120 125 130 110 115 120 120 120 125 130 100 115 120 120 120 120 125 120 120 125 120 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 125 120 120 120 125 120 120 120 120 120 120 120 120	1.35 1.73 1.75 1.73 1.75 1123 1120 1109 1061 1090 1061 1090 1097 923 975 925 925 925 925 925 925 925 92	1.34 1.70 1.70 1.76 300 1124 1123 986 005 1055 934 870 800 800 800 800 800 800 800	1.55 1.69 1.76 1123 1124 1169 993 941 810 734 810 735 75 75 75 75 75 75 75 75 75 75 75 75 75	1.69 1.78 330 1122 1125 1127 1100 1075 1039 946 883 817 739 946 883 817 739 946 655 564 468 367 267 178 833 817 739 946 632 367 267 109 63.2 367 28.8 25.9 109 63.2 39.9 109 63.2 39.9 109 63.2 39.7 28.8 25.9 109 63.2 39.7 28.8 25.9 109 63.2 39.7 28.8 25.9 109 63.2 39.7 28.8 25.9 109 109 109 109 109 109 109 10	1.70 1.73 345 1121 1124 1117 1100 998 885 885 885 885 885 885 885	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 225 30 35 40 45 55 60 65 55 55 80 65 75 80 100 115 120 20 20 20 25 55 55 55 55 80 100 115 120 20 20 20 20 20 20 20 20 20	1.35 1.73 1.75 1.75 1.23 1.23 1.20 1.23 1.20 1.090 1.061 2.23 2.23 2.25 1.23 2.25 1.20 2.24 1.09 2.45 1.69 1.44 2.45 1.69 1.44 1.09 8.4.2 2.45 1.69 1.44 1.09 8.4.2 2.45 1.25 1.12 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 8.4.2 1.09 1.44 1.09 1.09 1.44 1.09 1.09 1.44 1.65 1.6 1.6 1.6 1.6 1.6 1.6 1.6 1.6	1.34 1.70 1.76 300 1124 1123 1124 1096 936 936 934 870 800 934 870 800 934 870 800 934 870 800 934 870 800 934 800 934 800 800 800 800 800 800 800 80	1.55 1.69 1.76 1123 1124 1123 1124 1099 1071 1071 993 941 878 810 973 4652 563 941 878 810 734 652 563 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 878 810 941 810 941 810 941 878 810 941 878 810 941 810 941 810 910 910 910 941 878 810 910 910 910 910 910 941 878 810 910 910 910 910 910 910 941 878 810 910 910 910 910 910 910 910 910 910 9	1.69 1.78 330 1122 1125 1117 1009 997 946 803 1009 997 946 803 807 1039 997 946 803 807 1039 997 946 803 807 1039 946 803 807 1039 947 1039 803 807 1039 803 803 803 807 1039 803 803 803 803 803 803 803 803	1.70 1.73 345 1121 1124 1117 100 1076 1040 998 946 885 946 887 739 854 14.3 13.0 10.0 10.0 15.2 73.4 14.3 13.0 10.0 10.0 10.0 10.0 10.5 11.2 11.0 10.0	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) (DEG) 0 5 10 15 15 10 22 23 30 35 40 25 30 35 45 50 55 60 65 65 65 65 65 85 99 100 115 115 110 120 125 135 145 120 120 125 135 100 15 15 100 15 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	1.35 1.73 1.75 285 1123 1120 1120 1120 1090 1000 1	1.34 1.70 1	1.55 1.69 1.76 1.76 1.23 1123 1124 1019 993 941 1036 953 941 1036 953 941 1036 953 941 1036 953 941 1036 953 941 1036 953 941 1036 953 941 1036 953 941 1036 953 941 1036 1036 953 941 1036 1037 1036 1037 1036 1036 1037 1036 1036 1037 1036 1037 1036 1037 1036 1037 1036 1037 1036 1037 1036 1037 1036 1036 1037 1036 1037 1036 1037 1036 1037 1036 1037 1036 1037 1036	1.69 1.78 330 1122 1125 1117 1039 997 946 655 564 468 883 887 883 887 883 883 887 739 946 655 564 468 739 946 655 564 468 739 946 655 564 468 739 946 655 564 468 739 946 655 564 468 739 946 655 564 468 739 739 739 739 739 739 739 739	1.70 1.73 345 1121 1124 1100 1076 805 807 739 946 654 561 461 561 461 561 461 31.3 18.2 250 1.48 1.49	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	1.8
170 175 180 C (DEG) 0 5 10 15 20 25 30 30 35 40 50 55 60 65 55 60 65 55 60 65 75 80 85 90 105 115 120 125 100 115 120 125 100 15 10 10 15 10 10 15 10 10 15 10 15 10 15 10 10 15 10 10 15 10 10 15 10 10 15 10 10 10 10 10 10 10 10 10 10	1.35 1.73 1.75 1.75 1.23 1.123 1.120 1061 1009 975 975 923 955 788 975 788 975 1009 104 109 84.2 109 84.2 149.9 43.8 60.8 55.4 49.9 43.6 030.6 22.4 149.9 143.8 149.9	1.34 1.70 1.76 300 1124 1123 1124 1096 936 936 934 870 800 934 870 800 934 870 800 934 870 800 934 870 800 934 800 934 800 800 800 800 800 800 800 80	1.55 1.69 1.76 1123 1124 1123 1124 1099 071 071 1036 993 071 878 810 773 652 563 68.8 810 734 652 563 734 652 209 145 53.0 941 878 88.9 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 878 800 941 800 945 940 945 940 945 940 945 940 945 940 945 940 945 940 945 940 945 940 940 940 940 940 940 940 940 940 940	1.69 1.78 330 1122 1125 1125 1127 1100 1075 997 946 803 807 739 655 564 468 367 267 267 267 267 267 28.8 25.9 21.1 28.8 25.9 21.2 28.8 25.9 21.2 28.8 25.9 21.2 28.8 25.9 21.2 28.8 25.9 21.2 28.8 25.9 21.2 21.	1.70 1.73 345 1121 1124 1127 1100 1076 1040 998 946 885 885 885 885 885 885 885 88	1.71	1.71	1.64	1.59	1.62	1.68	1.76	1.83	1.88		1.75	1.65	1.75	

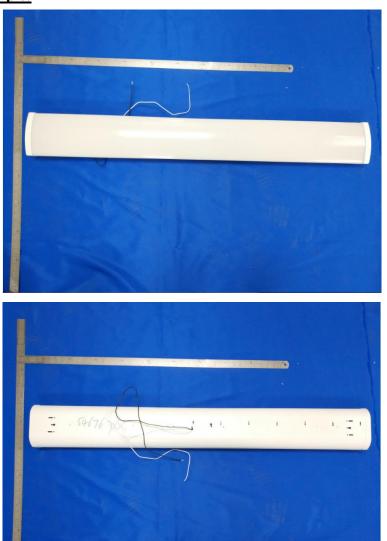
### **THD and PF Measurement Test Result:**

### **Electrical Measurement:**

Voltage (Vac)	Frequency (Hz)	Current (A)	Power (W)	<b>Power Factor</b>	iTHD
277	60	0.129	32.7	0.910	12.51











Equipment Eist			
Equipment ID	Equipment Name	Last Cal.	Due Cal.
NTC-F01-001	Goniophotometer System	2017-11-18	2018-11-17
NTC-F01-006	2.0 meter Integrating Sphere	2017-11-18	2018-11-17
NTC-F01-013	Standard Lamp	2017-11-18	2018-11-17
NTC-F01-031	Digital Power Meter	2017-11-18	2018-11-17
NTC-F01-019	Temperature & Humidity Meter	2017-11-23	2018-11-22





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