LCTECH

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Test report of

IES LM-79-08

Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Rendered to:
LED One Corporation
12437 Bellegrave Ave Eastvale,CA 91752 United States

For products:
High Bay Luminaires (Commercial and Industrial)

Models No.:
LOC-ELHB-MW(80/100/150)35KD-LV

Test Date:	Oct. 9, 2021
Test Lab.:	**LCTECH Guangdong Testing Services Co., Ltd.** 2/F., Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China Tel:+86-760-22833366 Fax:+86-760-22833399 E-mail:Service@lccert.com http://www.lccert.com
Test Sites:	1/F., Building I, Technology and Enterprise Development Center, Guangyuan Road, Xiaolan, Zhongshan, Guangdong, China
Template No.:	LC-RT-PL-045 Rev.1.3
Test Note:	*N/A*

Complied by:		**Reviewed by:**	
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Oct. 27, 2021		**Oct. 27, 2021**	

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1. General

1.1 Product Information

Brand Name	LEDone®
Category	Indoor
General Application	High-Bay
Primary Use	High Bay Luminaires (Commercial and Industrial)
Model Number	LOC-ELHB-MW(80/100/150)35KD-LV
Rated Inputs	100-277VAC, 50/60Hz
Rated Power	80W/100W/120W/150W
Rated Light output	21000lm
Declared CCT	3500K
Power Supply	LF-FHB150BAIV
LED Package, Array or Module	Model: L130-3570003000X21, manufactured by Lumileds
Dimming	Continuous Dimming
Integral Controls	No
Controls Controllability	No
Receipt Samples	1 unit
Sample Code of lab.	210927104001
Date of Receipt Samples	Sep. 27, 2021
Note	This is a multi-power product, 150W was selected for the test.

1.2 Standards or methods

The following standards are partly or totally used or referenced for test:

No.	Name
ANSI/NEMA/ ANSLG C78.377- 2017	Specifications for the Chromaticity of Solid State Lighting Products
ANSI/IES TM-30-18*	IES Method for Evaluating Light Source Color Rendition
ANSI C82.77-2002	Harmonic Emission Limits—Related Power Quality Requirements for Lighting Equipment
CIE Pub. No. 13.3-1995	Method of Measuring and Specifying Color Rendering of Light Sources
CIE Pub. No. 15:2004	Colorimetry
IES LM-79-08	Electrical and Photometric Measurements of Solid-State Lighting Products

Note:

**For reference only and not in the scope of NVLAP.*

1.3 Equipment list

Instrument	ID	Model name	Cal. date	Next cal. Date
AC Power supply	LC-I-987	APW-120N	2020-12-23	2021-12-22
AC Power supply	LC-I-989	APW-120N	2020-12-23	2021-12-22
Power analyzer	LC-I-928	WT210	2020-12-25	2021-12-24
Power analyzer	LC-I-954	WT210	2020-12-25	2021-12-24
Multimeter	LC-I-972	Fluke 17B	2021-07-19	2022-07-18
Photometric colorimetric electric system** (2 meter sphere)	LC-I-956	HAAS-2000	Before use	Before use
Standard lamp***	LC-PL-I-011	D204C	2021-07-09	2022-07-08
Luminous Flux Standard Lamp****	LC-PL-I-003	24V100W	2021-07-09	2022-07-08
Goniophotometer(with mirror)	LC-I-902	GMS2000	2021-04-22	2022-04-21
Wireless temperature transmitter	LC-I-PL-009	DWLR-DLR	2020-12-24	2021-12-23
Wireless temperature transmitter	LC-I-PL-008	DWLR-DLR	2020-12-24	2021-12-23

Note:

** *Bandwidth of spectroradiometer is 1 nm.*

*** *halogen lamp, 100W, omni-directional type, and its traceability to NIM.*

**** *halogen lamp, 100W, omni-directional type, and its traceability to NIM.*

2. Test conducted and method

The luminaire was operated at least 2 hours to reach stabilization and temperature equilibrium before test.

2.1 Ambient Condition

The ambient temperature in which measurements are being taken was maintained at 25 °C ± 1°C; the air flow around the sample(s) being tested did not affect the performance.

2.2 Power Supply Characteristics

The AC power supply had a sinusoidal voltage wave shape at the prescribed frequency (60 Hz) such that the RMS summation of the harmonic components does not exceed 3 percent of the fundamental during operation of the test item.

The voltage of AC power supply (RMS voltage) applied to the device under test was regulated to within±0.2 percent under load.

2.3 Seasoning and Stabilization

No seasoning was performed in accordance with IESNA LM-79-08. And before the measurement, the sample was stabilized until the light output and power variations were less than 0.5% in 30 minutes intervals (3 readings, 15 minutes apart).

2.4 Electrical Instrumentation

The calibration uncertainties of the instruments for AC voltage and current were less than 0.2 percent, and the calibration uncertainty of the AC power meter was less than 0.5 percent(95 % confidence interval, k=2).

2.5 Color Measurement Method

Spectral radiant flux was measured by a sphere (2 meter)-spectroradiometer system, and the color characteristics (Color rendering index, correlated color temperature, chromaticity coordinate) were calculated from these by software automatically.

2.6 Total Luminous Flux Measurement Method

Total luminous flux was measured by both sphere-spectroradiometer system and type C goniophotometer system.

Light intensity distribution was measured by a type C goniophotometer (with mirror) which can keep the sample in burn position when the tests conduct, and the total luminous flux was calculated from the intensity data by software automatically.

Spectral radiant flux was measured by a sphere (2 meter)-spectroradiometer system, and the total luminous flux was calculated from these by software automatically.

2.7 Luminous Intensity Distribution Measurement Method

Luminous intensity distribution was measured by a mirror-type goniophotometer (Type C) which can keep the sample in burn position when the tests conduct, and the kinds of graph were generated by software automatically.

2.8 Spatial Non-uniformity of Chromaticity

The customer did not require this measurement.

3. Test Result Summary

3.1 Electrical data

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Input Voltage & Frequency	120.04 V~60Hz	120.04 V~60Hz
Input Current(A)	1.291	1.292
Total Power(W)	154.50	154.59
Power Factor	0.997	0.997
I-THD	6.02 %	-
Off-state Power(W)	-	-

3.2 Photometric data

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Total Lumens(lm)	23783.09*	23802.65
Luminaire Efficacy(Lm/W)	153.94	153.97
Correlated Color Temperature (CCT)(K)	3454	-
Color Rendering Index (CRI)	72.5	-
R9	-28	-
R_f	74	-
R_g	94	-
$R_{cs,h1}$	-17%	-
Chromaticity Coordinate (x,y)	x = 0.4061 y = 0.3873	-
Chromaticity Coordinate (u',v')	u' = 0.2376 v' = 0.5100	-
Duv	-0.0017	-
Zone Lumens between 20-50 °	-	63.80%
Maximum UGR**	-	26.8

3.3 Color Rendering Details

R1	R2	R3	R4	R5	R6	R7	R8
69	81	90	69	69	73	80	49
R9	R10	R11	R12	R13	R14	R15	-
-28	55	64	46	72	94	63	-

3.4 Electrical data on 277V

Criteria Item	Result(Sphere)	Result(Goniophotometer)
Input Voltage & Frequency	276.98 V~60Hz	-
Power Factor	0.942	-
I-THD	8.02 %	-

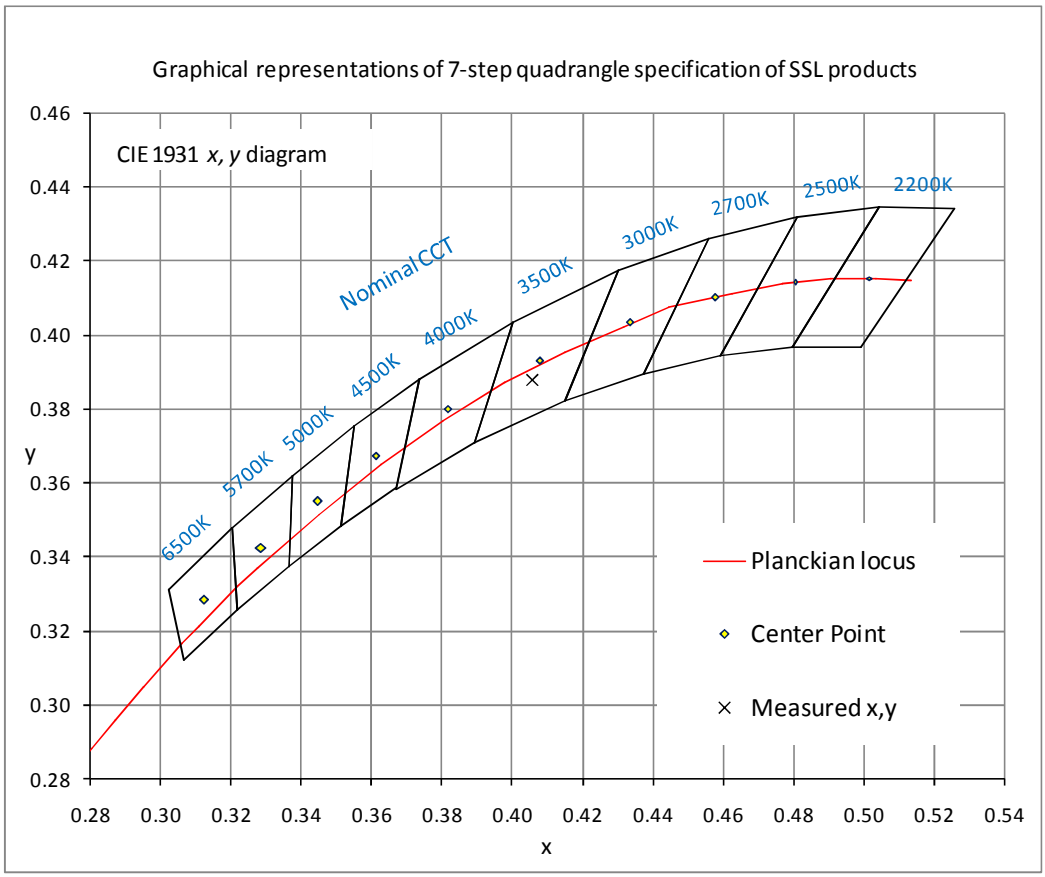
Note:

*: *Self-absorption is 1.161.*

**: *Based on Room dimension: X=4H, Y=8H, Reflectance: 70/50/20%.*

4. Test Data

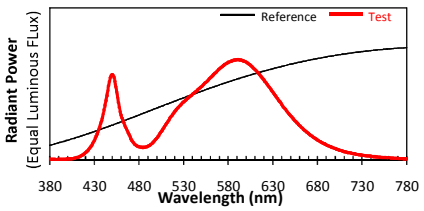
4.1 ANSI Chromaticity Quadrangles Diagram

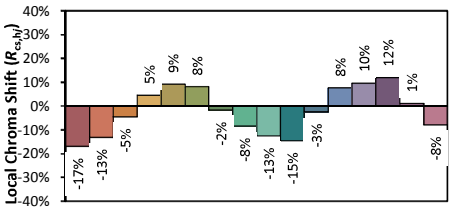


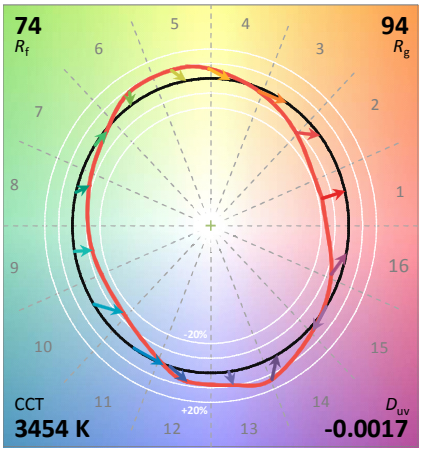
4.2 ANSI/IES TM-30-18 Color Rendition

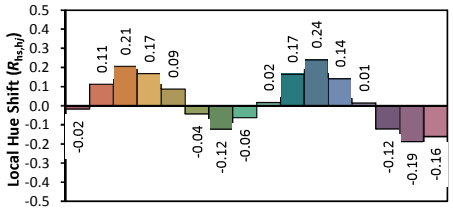
ANSI/IES TM-30-18 Color Rendition Report

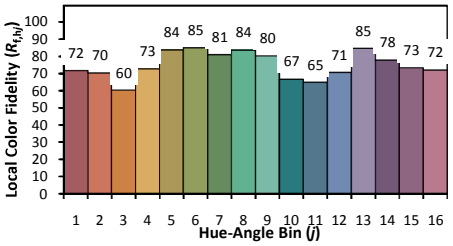
Source:	User SPD	**Manufacturer:**	LED One Corporation
Date:	2021/10/27	**Model:**	LOC-ELHB-MW(80/100/150)35KD-LV

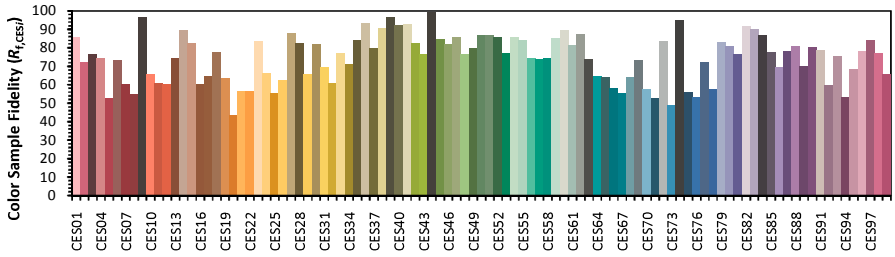












Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x	0.4061
y	0.3873
u'	0.2376
v'	0.5100

Colors are for visual orientation purposes only. Created with the IES TM-30-18 Calculator Version 2.00.

4.3 Goniometry Test Data

CIE Type	Direct	Basic Luminous Shape	Circular
Spacing Criteria (0-180)	1.22	Luminous Length	0.23 m (Diameter)
Spacing Criteria (90-270)	1.22	Luminous Width	0.23 m (Diameter)
Spacing Criteria (Diagonal)	1.24	Luminous Height	0.00 m
Test Distance	30.10 m		

4.4 Zonal Lumen Summary

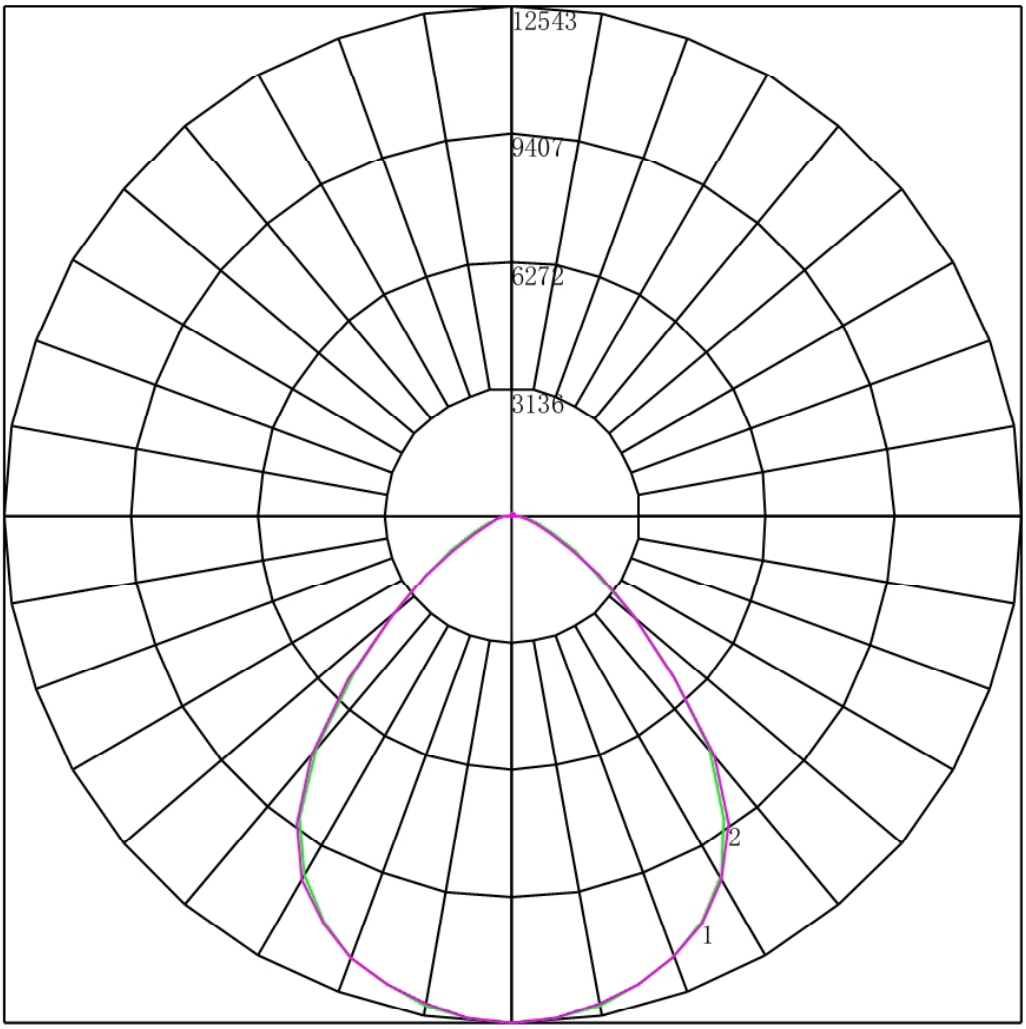
Zone	Lumens	%Lamp	%Fixt
0-20	4570.91	19.20	19.20
0-30	9653.88	40.60	40.60
0-40	15336.64	64.40	64.40
0-60	22156.65	93.10	93.10
0-80	23653.9	99.40	99.40
0-90	23722.53	99.70	99.70
10-90	22537.61	94.70	94.70
20-40	10765.73	45.20	45.20
20-50	15178.52	63.80	63.80
40-70	7901.87	33.20	33.20
60-80	1497.25	6.30	6.30
70-80	415.39	1.70	1.70
80-90	68.62	0.30	0.30
90-110	7.24	0.00	0.00
90-120	12.43	0.10	0.10
90-130	20.56	0.10	0.10
90-150	43.30	0.20	0.20
90-180	80.13	0.30	0.30
110-180	72.89	0.30	0.30
0-180	23802.65	100.00	100.00

Total Luminaire Efficiency = 100.00%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	1184.91
10-20	3386.00
20-30	5082.97
30-40	5682.76
40-50	4412.79
50-60	2407.22
60-70	1081.86
70-80	415.39
80-90	68.62
90-100	3.20
100-110	4.03
110-120	5.20
120-130	8.12
130-140	9.75
140-150	12.99
150-160	16.46
160-170	14.74
170-180	5.63

4.5 Polar Curves



Maximum Candela = 12543.11 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180)
2 - Vertical Plane Through Horizontal Angles (90 - 270)

4.6 UGR Table

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	25.4	26.8	25.8	27.1	27.4	25.3	26.7	25.7	27.0	27.3
	3H	26.0	27.3	26.4	27.6	28.0	25.9	27.1	26.3	27.4	27.8
	4H	26.2	27.4	26.6	27.7	28.1	26.1	27.2	26.5	27.5	27.9
	6H	26.3	27.3	26.7	27.7	28.1	26.1	27.2	26.5	27.5	27.9
	8H	26.3	27.3	26.7	27.7	28.1	26.1	27.1	26.5	27.5	27.9
	12H	26.3	27.2	26.7	27.6	28.0	26.1	27.0	26.5	27.4	27.9
4H	2H	25.6	26.7	26.0	27.1	27.5	25.5	26.6	25.9	27.0	27.4
	3H	26.3	27.3	26.8	27.7	28.1	26.2	27.1	26.6	27.5	27.9
	4H	26.6	27.4	27.0	27.9	28.3	26.4	27.3	26.9	27.7	28.1
	6H	26.7	27.5	27.2	27.9	28.4	26.6	27.3	27.0	27.7	28.2
	8H	26.8	27.4	27.2	27.9	28.3	26.6	27.2	27.0	27.7	28.2
	12H	26.7	27.3	27.2	27.8	28.3	26.5	27.1	27.0	27.6	28.1
8H	4H	26.6	27.3	27.1	27.7	28.2	26.5	27.1	27.0	27.6	28.1
	6H	26.8	27.3	27.3	27.8	28.3	26.6	27.2	27.1	27.7	28.2
	8H	26.8	27.3	27.3	27.8	28.3	26.7	27.1	27.2	27.7	28.1
	12H	26.8	27.2	27.3	27.7	28.3	26.6	27.1	27.1	27.6	28.1
12H	4H	26.6	27.2	27.1	27.7	28.1	26.4	27.0	26.9	27.5	28.0
	6H	26.8	27.3	27.3	27.7	28.3	26.6	27.1	27.1	27.6	28.1
	8H	26.8	27.2	27.3	27.7	28.3	26.6	27.1	27.1	27.6	28.1

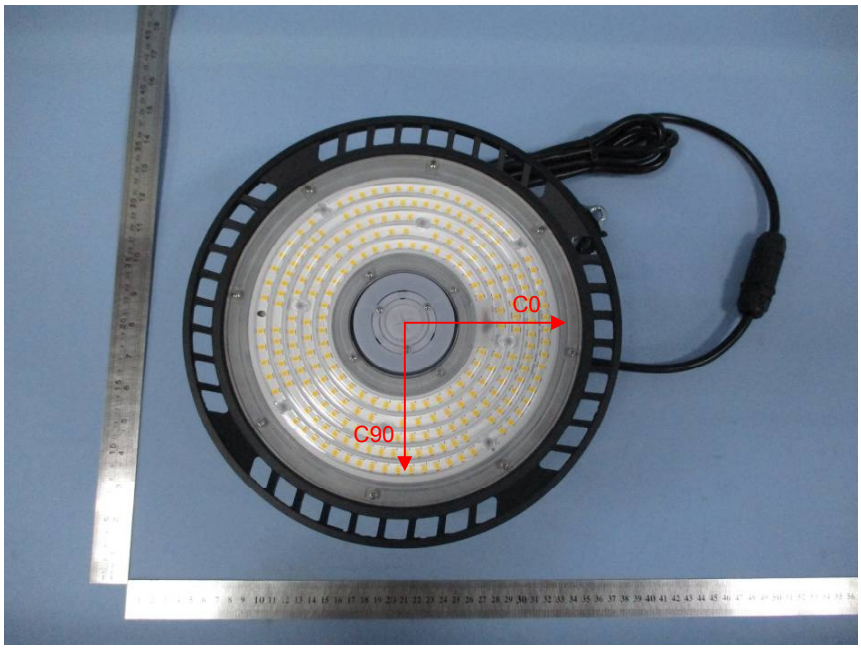
Maximum UGR = 28.4

Note: The Corrected UGR values generated by Photometric Toolbox 32(Lighting Analysts, Inc., version 2.8), based on Spacing to height ratio (S/H): 1.

4.7 Candela Tabulation

	0	15	30	45	60	75	90
0	12543.110	12543.110	12543.110	12543.110	12543.110	12543.110	12543.110
5	12483.490	12481.870	12473.280	12462.760	12479.600	12476.470	12461.990
10	12295.980	12295.690	12295.910	12285.720	12289.190	12283.940	12261.200
15	12003.330	11990.860	12001.480	11981.500	12002.520	12004.730	11990.820
20	11597.820	11607.100	11612.900	11590.850	11615.400	11623.360	11616.710
25	11037.570	11048.730	11058.310	11046.670	11074.260	11069.030	11085.250
30	10270.690	10254.760	10279.810	10284.260	10442.900	10337.110	10349.460
35	9122.879	9144.327	9156.538	9185.642	9245.003	9244.807	9302.057
40	7510.845	7548.710	7608.113	7650.834	7691.551	7708.626	7720.096
45	5592.969	5594.357	5654.765	5909.297	5729.301	5711.141	5693.111
50	3878.532	3881.427	3926.435	3914.411	3913.366	3911.470	3873.124
55	2657.445	2662.122	2561.450	2548.183	2614.139	2572.832	2599.665
60	1760.677	1701.622	1752.980	1662.431	1665.644	1695.597	1687.455
65	1091.651	1028.179	1021.565	1023.583	1021.456	1013.470	1045.451
70	651.732	628.622	627.158	616.512	613.835	610.130	622.900
75	390.402	422.565	387.434	382.504	380.645	372.844	382.658
80	180.910	177.956	176.730	178.057	176.912	169.335	173.710
85	35.818	36.765	36.358	34.810	38.520	38.617	33.864
90	3.004	2.937	2.933	2.906	2.835	2.848	2.704
95	2.822	2.845	2.774	2.792	2.766	2.779	2.704
100	3.322	3.301	3.297	3.291	3.310	3.298	3.147
105	3.914	3.733	3.888	3.881	3.877	3.885	3.812
110	4.233	4.234	4.252	4.312	4.262	4.315	4.167
115	4.961	5.008	5.093	5.083	5.055	5.059	4.876
120	6.645	6.669	6.525	6.695	6.710	6.754	6.560
125	9.193	9.195	9.230	9.259	9.271	9.350	9.353
130	11.105	11.130	11.140	11.142	11.152	11.246	11.303
135	12.015	12.041	12.049	11.937	12.104	12.173	12.189
140	15.155	15.205	15.187	15.204	15.278	15.267	15.336
145	20.344	20.417	20.393	20.379	20.470	20.461	20.611
150	27.535	27.451	27.578	27.528	26.643	27.599	27.570
155	35.727	35.690	35.694	35.699	35.774	35.865	35.948
160	44.966	44.886	44.925	44.891	44.955	44.946	45.123
165	53.067	53.035	53.019	52.971	53.050	52.094	53.101
170	59.757	59.704	59.703	59.643	59.715	59.607	59.750
175	64.946	64.894	64.819	64.886	64.770	64.735	64.803
180	33.741	33.741	33.741	33.741	33.741	33.741	33.741

Appendix A Product Photo



Picture 1

Picture 2

****End of test report****