



71781
2X2 LED Troffer



RoHS

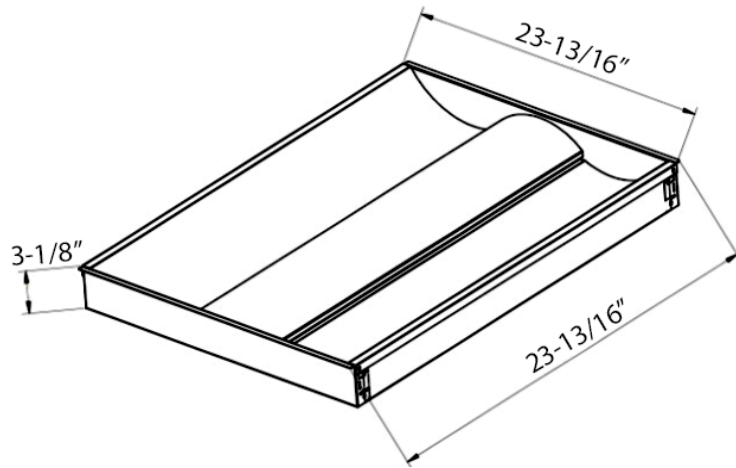
0-10V Dimmable



QPL ID #
PR3BFQPW



Model:		71781
OVERALL LAMP PARAMETERS	Input Voltage	120-277 VAC 60HZ
	Input Current	.3339A Max @ 120V; 0..15A Max @ 277V
	Input Power	40W
	Power Factor	PF>0.99
	Lumiance	5,000 LM
	Luminous Efficiency	125 LM/W
	CRI	>82
	B9	9
	Beam Angle	112°
	SDCM	<7
	UGR	<19
LED DRIVER	Brand	Arcata 2835
	Output Voltage	12-24 VDC
	Output Current	1.2A
	THD	12% @ 120W
	Driver Efficiency	88%
LED	LED Manufacturer	Edison
	LED Type	2835 SMD
	LED Quantity	238 PCS
	LED Efficacy	140 LM/W
	Color Temperature	4000K
LIFESPAN & ENVIRONMENT	Output Current	50mA Max; 37.5mA Applied
	Lifespan	50,000+ Hrs.
	Warranty	5 Years
	IP Rating	IP21 Dry Locations
	Operating Temperature	-20°C--+40°C
SAFETY/EMC	Storage Temperature, Humidity	-40°C--+80°C , 10-90% RH
	Safety Norms	UL1598, UL8750, EN60598, EN61347-2-13, EN62031, EN62471
	Withstand Voltage	1/P-PG: 2121VDC
	Grounding Resistance	25A 100mΩ
OTHERS	Electromagnetic Compatibility	EN55015, EN61000-2-3, EN61000-3-3, EN61547
	Dimension	Pls refer to attached dimension drawing
	Net Weight	0.68G
	Gross Weight	0.88G
	Q'ty / Carton纸箱	2 PCS
	Volume	0.530m³/carton
	Housing Color	White
	Main Structure	Aluminium Frame + Polystyrene Lens



Test Report

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Customer : Morris Products Inc.
Address : 53 Carey Rd. Queensbury, NY 12804

Description of the submitted sample(s):

Sample Name : LED Luminaire
Model/Type : 71780
Brand : MORRIS
Sample No. : 35I0625-02
Ratings : 120-277 V AC, 50/60 Hz, 40 W, 5000 K
Test Item : Total Luminous Flux, Luminous Efficacy, Zonal Lumen Density, Luminous Intensity Distribution, Correlated Color Temperature, Color Rendering index, Chromaticity Coordinate and Electrical Parameters
State of Sample(s) : Normal
Sample Quantity : 1 pc
Manufacturer : Morris Products Inc.

Sample Received Date : Nov. 09, 2016
Sample Tested Date : Nov. 09, 2016 to Nov. 10, 2016
Test Requested : All test items were measured according to IES LM-79-08 Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products

Laboratory Note: The laboratory that conducted the testing items in this report has been accredited by the National Voluntary Laboratory Accreditation Program (NVLAP LAB CODE: 200889-0), for IES LM-79 testing of SSL products. And the report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Compiled by

Heavenlin

Reviewed by

Heavenlin

Approved by

Heavenlin

Engineer/Heven Liu

Dec. 22, 2016

Check No.: 2457570188



CENTRE TESTING INTERNATIONAL CORPORATION

NO.1996, Xin jin qiao Road, Pudong New District,
Shanghai, 201206, China

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Equipment list:

Test Equipment	Equipment Model	Equipment No.	Calibration Date	Calibration Due Date
Goniophotometer	GO-R5000	ATTEELSH00105	---	---
Standard Lamp	D908	ATTEELSH00106	Jul. 06, 2016	Jul. 05, 2017
Digital Power Meter	WT210	BTTEELSZ10093	Jun. 17, 2016	Jun. 16, 2017
Spectroradiometer	HAAS-2000	TTF20120376	---	---
Integrating Sphere	2.0m	ATTEELSH00007	---	---
Standard Lamp	D204	TTE20141711	Jul. 06, 2016	Jul. 05, 2017
Digital Power Meter	PF2010	ATTEELSH00011	Jun. 17, 2016	Jun. 16, 2017

1 Test Condition

Ambient Condition : 25.1 °C
 Photometric Method : Goniophotometer
 Colorimetric Method : Sphere-spectroradiometer
 Tested : 120 V AC, 60 Hz
 Stabilization Time : 60 minutes
 Total Operation Time including Stabilization : 95 minutes

2 Test Method

2.1 Requirements of Ambient Condition

The ambient temperature in which measurements are being taken shall be maintained at $25^{\circ}\text{C} \pm 1^{\circ}\text{C}$, measured at a point not more than 1 m from the SSL product and at the same height as the SSL product. Air flow around the SSL product being tested should be such that normal convective air flow induced by device under test is not affected.

2.2 Seasoning of SSL Product

For the purpose of rating new SSL products, SSL products shall be tested with no seasoning. Therefore, no seasoning was performed.

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2.3 Stabilization of SSL Product

Before measurements are taken, the SSL product under test shall be operated long enough to reach stabilization and temperature equilibrium. The time required for stabilization depends on the type of SSL products under test. The stabilization time typically ranges from 30 minutes to 2 or more hours for SSL product. It can be judged that stability is reached when the variation (maximum – minimum) of at least 3 readings of the light output and electrical power over a period of 30 minutes, taken 15 minutes apart, is less than 0.5%.

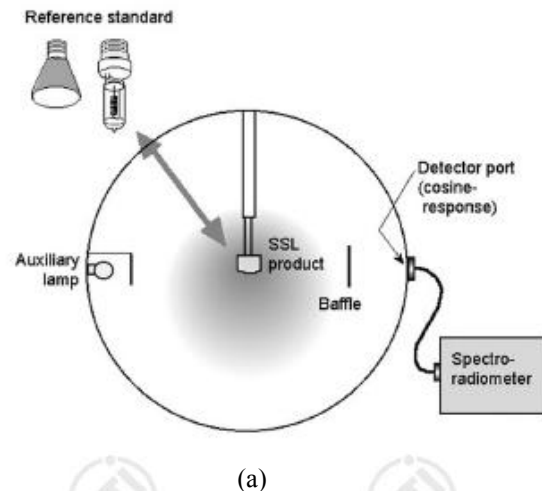
2.4 Photometric and Electrical Measurements –Sphere-spectroradiometer Method

A spectroradiometer and an integrating sphere were used to measure correlated color temperature, color rendering index, and chromaticity coordinates. The 4π geometry, shown as following, chart (a), is used for measurement. Ambient temperature was measured at a position inside the integrating sphere. Electrical measurements including voltage, current, and power were measured using the digital power meter.

The calibration of the sphere-spectroradiometer system is traceable to the National Institute of Standards and Technology.

2.5 Photometric and Electrical Measurements - Goniophotometer Method

A type C goniophotometer was used to measure total luminous flux and intensity at each angle of distribution. The photometric distance is 2.1m for near-field measurement or 26m for far-field measurement. Ambient temperature was measured at the same height of the sample mounted on the goniophotometer equipment. Electrical measurements including voltage, current, and power were measured using the digital power meter. Some graphics were created with Photometric Plus software.



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3 Test Results

3.1 Photometric and Electrical Measurements

Input Voltage (V AC)	Input Current (A)	Input Power (W)	Power Factor	THD of Current (%)
120.0	0.3339	39.69	0.9908	12.11
Total Luminous Flux (lm)	Luminous Efficacy (lm/W)	Correlated Color Temperature (K)	Color Rendering Index/R _a	Color Rendering Index/R ₉
4899.1	123.43	4996	82.3	9
Chromaticity Coordinate x	Chromaticity Coordinate y	Chromaticity Coordinate u'	Chromaticity Coordinate v'	Duv
0.3457	0.3576	0.2095	0.4877	0.0027

Note: According to CIE 1976 (u', v') diagram, $u' = u = 4x/(-2x+12y+3)$, $v' = 3v/2 = 9y/(-2x+12y+3)$.

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3.2 Zonal Lumen Density

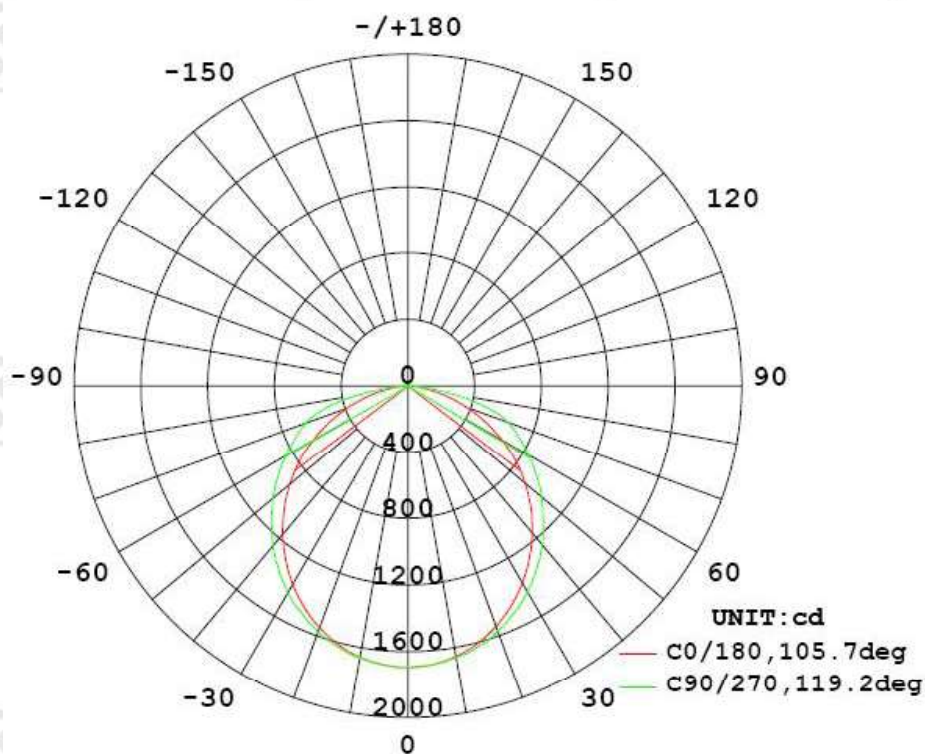
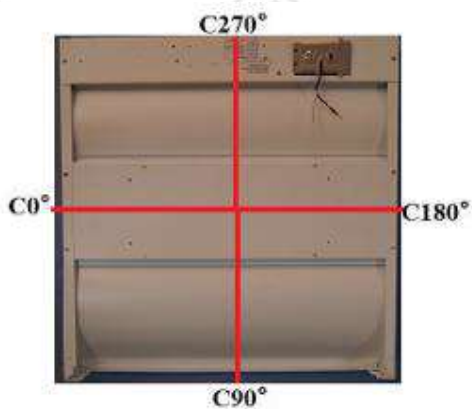
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1653	1658	1660	1668	1658	1666	1660	1656	0- 10	160.1	160.1	3.27, 3.27
20	1541	1558	1570	1577	1549	1571	1575	1556	10- 20	456.9	617.0	12.6, 12.6
30	1371	1401	1435	1425	1381	1420	1440	1397	20- 30	687.7	1305	26.6, 26.6
40	1158	1202	1252	1232	1168	1229	1260	1201	30- 40	823.4	2128	43.4, 43.4
50	917.1	981.5	1047	1009	925.0	1011	1059	983.8	40- 50	852.2	2980	60.8, 60.8
60	649.4	751.4	833.5	769.9	660.2	777.0	847.3	753.9	50- 60	780.7	3761	76.8, 76.8
70	374.2	519.3	640.3	534.9	388.3	541.6	652.6	526.5	60- 70	630.4	4391	89.6, 89.6
80	128.5	251.7	269.6	264.1	141.8	281.8	297.7	264.7	70- 80	409.9	4801	98, 98
90	0	0.0020	0.0019	0.0014	0	0.2419	0.2735	0.3094	80- 90	91.26	4893	99.9, 99.9
100	0	0	0	0	0.4509	0.9978	0.9473	1.307	90-100	0.3129	4893	99.9, 99.9
110	0	0.0682	0.1349	0	1.175	1.820	1.890	2.094	100-110	0.7747	4894	99.9, 99.9
120	0.1118	0.0698	0.4049	0	2.125	1.960	2.092	2.127	110-120	1.009	4895	99.9, 99.9
130	0.7831	0.0698	0.4049	0	2.915	2.060	2.227	2.093	120-130	1.049	4896	99.9, 99.9
140	0.7827	0.1029	0.4724	0	3.467	2.025	2.227	2.093	130-140	1.081	4897	100, 100
150	0.7827	0.1704	1.012	0.0342	3.019	2.027	2.227	1.992	140-150	0.9407	4898	100, 100
160	0.7827	0.3434	1.080	0.2080	2.907	1.713	1.957	1.786	150-160	0.7032	4898	100, 100
170	2.009	1.030	1.618	1.063	2.627	1.713	1.957	1.686	160-170	0.4608	4899	100, 100
180	2.407	1.374	1.890	1.506	2.460	1.608	1.889	1.582	170-180	0.1821	4899	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		

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3.3 Luminous Intensity Distribution



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3.4 Luminous Intensity Distribution Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
0	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695
5	1683	1685	1684	1685	1684	1684	1680	1687	1688	1684	1678	1690	1691	1692	1688	1685	1688	1681	1686
10	1653	1655	1659	1659	1657	1658	1657	1664	1665	1660	1656	1670	1666	1671	1666	1659	1658	1653	1658
15	1606	1610	1614	1617	1618	1618	1621	1627	1628	1623	1622	1629	1628	1633	1624	1617	1615	1601	1612
20	1541	1546	1552	1555	1556	1560	1565	1577	1580	1570	1577	1586	1574	1585	1569	1553	1551	1544	1549
25	1462	1468	1475	1481	1483	1490	1501	1512	1514	1507	1509	1520	1517	1518	1499	1483	1471	1461	1472
30	1371	1377	1388	1392	1396	1407	1425	1438	1443	1435	1432	1439	1442	1439	1411	1394	1386	1370	1381
35	1269	1276	1285	1288	1298	1315	1336	1349	1352	1346	1347	1353	1353	1351	1319	1297	1280	1271	1279
40	1158	1165	1175	1181	1190	1213	1241	1253	1260	1252	1250	1259	1254	1246	1218	1188	1167	1160	1168
45	1041	1047	1055	1063	1082	1109	1136	1151	1159	1147	1149	1158	1149	1143	1109	1072	1050	1041	1049
50	917	922	932	942	965	998	1025	1043	1051	1047	1041	1050	1041	1024	994	958	930	919	925
55	787	792	802	819	848	883	912	931	941	938	938	938	931	908	872	834	802	791	795
60	649	657	671	695	732	771	800	821	835	833	832	831	812	790	750	710	673	658	660
65	512	519	540	570	611	654	691	713	734	734	727	727	703	674	629	583	543	524	523
70	374	384	409	446	496	543	585	613	633	640	632	623	597	560	510	460	412	389	388
75	245	255	283	326	381	434	459	476	481	483	485	487	475	448	393	335	285	259	259
80	129	138	165	205	242	261	269	267	267	270	271	277	281	276	252	212	168	143	142
85	39.7	43.6	54.5	65.6	70.3	66.1	59.6	54.0	50.4	49.4	53.2	59.2	66.4	75.5	78.2	73.8	60.3	48.4	48.8
90	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89
110	0.00	0.00	0.00	0.00	0.00	0.14	0.28	0.34	0.14	0.13	0.20	0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.18
115	0.06	0.00	0.00	0.00	0.00	0.14	0.28	0.42	0.41	0.27	0.27	0.14	0.00	0.00	0.00	0.00	0.00	0.00	1.57
120	0.11	0.00	0.12	0.00	0.00	0.14	0.35	0.42	0.41	0.40	0.34	0.14	0.00	0.00	0.00	0.00	0.00	0.00	2.12
125	0.56	0.11	0.24	0.00	0.00	0.14	0.42	0.42	0.41	0.40	0.34	0.14	0.00	0.00	0.00	0.00	0.00	0.00	2.18
130	0.78	0.28	0.78	0.32	0.00	0.14	0.42	0.42	0.41	0.40	0.34	0.14	0.00	0.00	0.00	0.00	0.24	0.17	2.91
135	0.78	0.79	0.96	0.32	0.00	0.14	0.42	0.42	0.41	0.47	0.41	0.14	0.00	0.00	0.00	0.06	0.30	0.34	3.47
140	0.78	0.80	0.90	0.52	0.07	0.14	0.42	0.42	0.41	0.47	0.41	0.28	0.07	0.00	0.00	0.19	0.36	0.57	3.47
145	0.78	0.80	0.90	0.77	0.00	0.14	0.42	0.90	0.82	0.88	0.82	0.35	0.21	0.00	0.00	0.39	0.78	0.85	3.30
150	0.78	0.80	0.90	0.84	0.20	0.14	0.49	0.97	0.96	1.01	0.88	0.49	0.35	0.07	0.00	0.39	0.90	0.80	3.02
155	0.78	0.80	0.90	0.84	0.34	0.35	0.49	0.97	0.96	1.01	0.88	0.56	0.42	0.28	0.00	0.39	0.90	0.80	3.02
160	0.78	0.80	0.90	0.84	0.34	0.35	0.49	0.97	1.02	1.08	0.88	0.69	0.42	0.35	0.07	0.39	0.90	0.80	2.91
165	1.62	1.65	1.32	1.09	0.81	0.97	0.98	1.11	1.09	1.08	1.02	1.04	0.91	0.90	0.88	1.09	1.56	1.76	2.74
170	2.01	2.16	1.92	1.54	1.01	1.05	1.40	1.60	1.77	1.62	1.49	1.39	1.33	1.05	1.08	1.48	1.81	2.16	2.63
175	2.52	2.50	2.05	1.86	1.15	1.12	1.54	2.09	1.91	1.89	1.97	1.94	1.40	1.05	1.28	1.80	2.35	2.50	2.57
180	2.41	2.50	2.05	1.86	1.35	1.40	2.11	2.09	1.91	1.89	1.97	2.01	1.96	1.46	1.55	2.18	2.53	2.61	2.46

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Table--2

UNIT: cd

C (DEG) γ (DEG)	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350
0	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695	1695
5	1684	1684	1688	1693	1691	1687	1689	1686	1684	1683	1692	1682	1686	1684	1684	1686	1682
10	1657	1656	1658	1664	1669	1669	1668	1667	1660	1661	1666	1656	1657	1656	1654	1660	1654
15	1612	1611	1613	1618	1631	1635	1631	1632	1626	1627	1629	1620	1616	1613	1607	1612	1607
20	1543	1548	1550	1561	1581	1579	1589	1582	1575	1577	1582	1565	1561	1551	1551	1552	1543
25	1466	1472	1476	1491	1513	1521	1525	1518	1509	1515	1515	1501	1486	1474	1474	1473	1472
30	1376	1380	1387	1406	1433	1447	1449	1444	1440	1441	1445	1426	1406	1387	1383	1382	1374
35	1270	1277	1290	1313	1344	1361	1363	1356	1352	1353	1358	1335	1319	1287	1281	1279	1276
40	1162	1165	1180	1213	1246	1263	1270	1264	1260	1262	1262	1242	1217	1186	1170	1168	1164
45	1042	1046	1069	1105	1138	1160	1169	1164	1161	1160	1160	1140	1113	1077	1056	1048	1045
50	917	925	948	991	1030	1053	1062	1059	1059	1057	1050	1030	1004	963	932	921	921
55	790	797	830	874	913	940	956	954	952	953	945	918	890	848	814	795	790
60	656	670	707	756	798	829	846	849	847	845	834	809	775	733	692	667	652
65	522	541	584	636	680	716	742	749	748	743	727	699	664	615	572	536	518
70	388	412	460	516	567	610	640	650	653	645	627	593	553	500	451	410	384
75	261	288	339	400	457	495	505	507	508	503	493	474	443	388	333	286	257
80	146	174	221	265	298	307	307	300	298	294	289	286	277	252	215	172	141
85	52.5	66.8	84.8	95.3	95.5	88.7	82.0	74.2	70.5	69.0	71.0	73.8	78.3	78.2	71.8	58.7	45.6
90	0.00	0.00	0.00	0.20	0.28	0.35	0.42	0.41	0.27	0.34	0.35	0.42	0.35	0.27	0.13	0.06	0.00
95	0.17	0.24	0.32	0.54	0.56	0.56	0.63	0.62	0.61	0.88	1.18	1.05	0.91	0.68	0.51	0.49	0.45
100	0.51	0.66	0.84	0.95	1.05	1.05	0.98	0.89	0.95	1.16	1.46	1.54	1.40	1.22	1.03	0.91	0.74
105	0.97	0.96	1.22	1.35	1.54	1.69	1.67	1.50	1.55	1.63	2.02	2.10	1.96	1.69	1.54	1.33	1.25
110	1.19	1.21	1.41	1.76	1.88	2.04	1.88	1.85	1.89	2.04	2.22	2.24	2.16	2.03	1.80	1.45	1.65
115	1.54	1.62	1.61	1.69	2.02	2.04	2.09	2.05	2.02	2.18	2.22	2.24	2.16	2.03	2.12	1.87	1.99
120	1.82	1.57	1.99	1.83	2.09	2.04	2.09	2.05	2.09	2.18	2.22	2.24	2.16	2.09	2.38	1.99	2.10
125	1.82	1.69	2.25	2.03	2.09	2.04	2.09	2.25	2.23	2.18	2.22	2.24	2.09	2.09	2.44	2.17	2.16
130	2.45	2.77	2.25	2.03	2.09	2.04	2.09	2.19	2.23	2.18	2.22	2.24	2.09	2.09	2.51	3.37	3.13
135	2.79	2.77	2.31	2.03	2.09	2.04	2.09	2.19	2.23	2.18	2.22	2.24	2.09	2.09	2.76	3.37	3.52
140	2.79	2.77	2.57	2.03	2.02	2.04	2.09	2.19	2.23	2.18	2.22	2.24	2.09	2.09	2.96	3.37	3.47
145	2.79	2.77	2.83	2.03	2.02	2.04	2.09	2.19	2.23	2.18	2.22	2.24	2.09	1.96	2.96	3.37	3.41
150	2.79	2.77	2.83	2.03	2.02	2.04	2.09	2.25	2.23	2.18	2.22	2.17	2.09	1.89	2.89	3.43	3.07
155	2.79	2.77	2.83	1.96	1.88	2.04	2.09	2.05	2.03	2.18	2.15	2.17	2.09	1.89	2.83	3.25	3.35
160	2.79	2.77	2.83	1.96	1.46	2.04	2.09	2.05	1.96	1.97	2.01	2.03	2.02	1.55	2.51	2.95	3.18
165	2.79	2.77	2.83	1.96	1.46	1.62	2.09	2.05	1.96	1.97	2.01	2.03	2.02	1.35	2.12	2.77	2.72
170	2.62	2.71	2.70	1.96	1.46	1.62	2.02	2.05	1.96	1.97	2.01	2.03	2.02	1.35	1.86	2.71	2.50
175	2.56	2.65	2.25	1.96	1.46	1.40	2.02	2.05	1.96	1.97	2.01	2.03	2.09	1.28	1.80	2.05	2.39
180	2.50	2.65	2.19	1.96	1.25	1.33	2.02	2.05	1.89	2.04	2.01	2.03	1.88	1.28	1.48	1.87	2.39

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Photos of the Sample



Fig.1- Overall view



Fig.2- Back view

*** End of Report ***

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