



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200901052BS

TEST REPORT of IES LM-79-08

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

Client..... : Shenzhen Sinoco Lighting Technologies Co.,Ltd.
Address..... : G building,Shasi , High-Tec ,Industrial park,Shajing Town,Baoan District,Shenzhen,
Guangdong,China
Brand Name..... : **SINOCO**[®]
Testing laboratory..... : Shenzhen Southern LCS Compliance Testing Laboratory Ltd.
Address..... : B Area, 2F, Building B, Zhongyu Green Wenge Road, Heshuikou, Gongming Street,
Guangming New District, Shenzhen, Guangdong Prov .518000 China
Product description .. : LED Street Light
Models..... : ST-52-30W-T3-3000K
Rating..... : AC220V, 50/60Hz, 30W, 3000K
Date of Test..... : September 02, 2020
Date of Issue..... : September 08, 2020

Test by:

William Lian

William Lian/ Project Engineer

Check by:

Ian Luo

Ian Luo/ Director

Approved by:



Jesse Liu/ Manager

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TRF No. LM-79-2008

Page 1 of 10

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Table of Contents

1. Test Method.....	3
2. Product Information.....	4
3. Test equipment list:.....	4
4. Integrating Sphere Test Results:	5
4.1 Test Data.....	5
4.2 Spectrum.....	5
5. Goniophotometer Test results.....	6
5.1 Test Data.....	6
5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx).....	6
5.3 Zonal Flux Diagram.....	7
5.4 Isocandela Diagram.....	8
5.5 Luminous Distribution Intensity Data.....	9
6. Photo of sample:.....	10

1. Test Method

Test Item.....	Integrating Sphere Test
Ambient Condition	25.1℃
Number of hours operated prior to Measurement	0h
Stabilization time	0.5h
Orientation(burning position) of SSL product during test	down
Test Method	The sample was tested according to the IES LM-79-2008. 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 rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.
Test Item.....	Goniophotometer Test
Ambient Condition.....	25.1℃
Total operated time of the product for measurements including stabilization..... (h):	2.5h
Correction factors applied.....	Intensity distribution
Orientation(burning position) of SSL product during test	down
Test Method.....	The sample was tested according to the IES LM-79-2008. Photometric paramters were measured using a type C goniophotometer and software. The sample reference plane was located at the center of the sample goniometer at a test distance of 26m from the detectors. The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, Luminous efficacy, zonal flux were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

Report No.: LCS200901052BS

2. Product Information

Product description.....:	LED Street Light
Model Number.....:	ST-52-30W-T3-3000K
Rated Inputs.....:	AC220V, 50/60Hz
Rated Power.....:	30W
Declared CCT.....:	3000K
LED Manufacturer.....:	N/A
LED Model.....:	N/A
LED Package, Array or Module.....:	N/A
Forward current of the LED chip.....:	N/A
Date of Receipt Samples.....:	September 02, 2020
Quantity of Receipt Samples.....:	1 unit

3. Test equipment list:

Manufacturer	Description	Equipment ID	Model	Calibration Date	Calibration Due Date
EVERFINE	Full-field Speed Goniophotometer	SLCS-S-112	GO-R5000	2020/07/02	2021/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2020/06/24	2021/06/23
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2020/06/24	2021/06/23
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2020/07/02	2021/07/01
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2020/07/02	2021/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2020/06/24	2021/06/23
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2020/06/24	2021/06/23
SENSING	Standard Lamp	SLCS-S-118	S11010017	2020/07/02	2021/07/01



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TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200901052BS

4. Integrating Sphere Test Results:

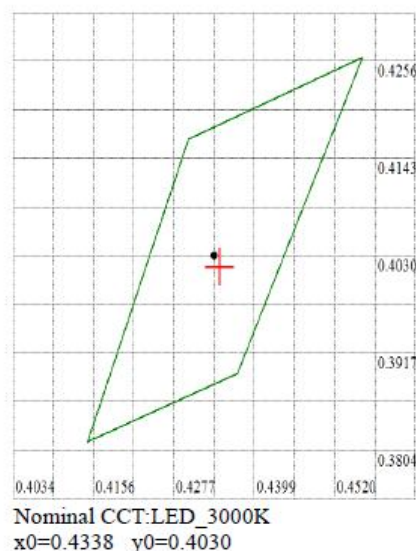
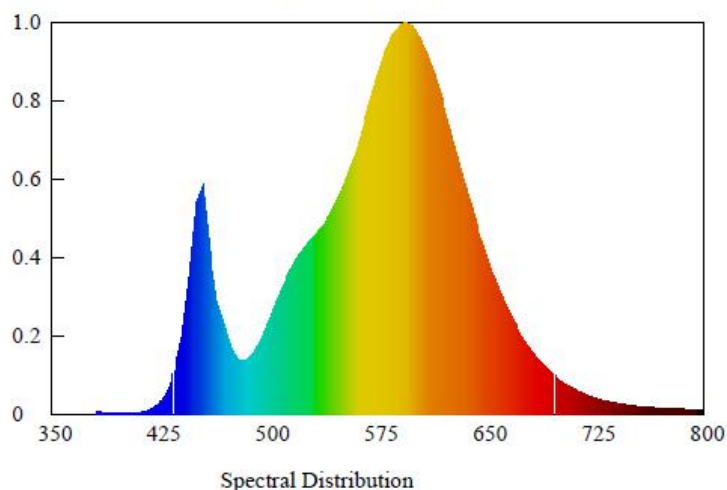
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.04	50.0	0.1446	0.9690	30.83

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	3021	72.9	-0.00061	4718.53	153.05

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.4346$ $y=0.4017$ $u'=0.2501$ $v'=0.5201$

Correlated Color Temperature: 3021 K

Colour Fidelity Index: $R_f=74$

Luminous Flux: 4718.53 lm

Chromaticity Difference: $-0.00061D_{uv}$

Color Ratio: $K_r=45.5\%$ $K_g=48.2\%$ $K_b=6.3\%$

Bandwidth: 101.4nm

Photosynthetically Active Radiation(PAR): 12.74W

Rendering Index: $R_a=72.9$

$R_1=70$ $R_2=86$ $R_3=94$ $R_4=68$ $R_5=70$ $R_6=81$ $R_7=75$ $R_8=41$

$R_9=-36$ $R_{10}=68$ $R_{11}=64$ $R_{12}=56$ $R_{13}=74$ $R_{14}=97$ $R_{15}=61$ $R_e=64$

Dominant Wavelength: 581.0 nm(E)

Gamut Index: $R_g=92$

Purity: 0.5136

Peak Wavelength: 595.0 nm

Radiant Flux: 13.036 W

Photosynthetic Photon Flux(PPF):61.43 μ mol/s



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NVLAP LAB CODE 600112-0

Report No.: LCS200901052BS

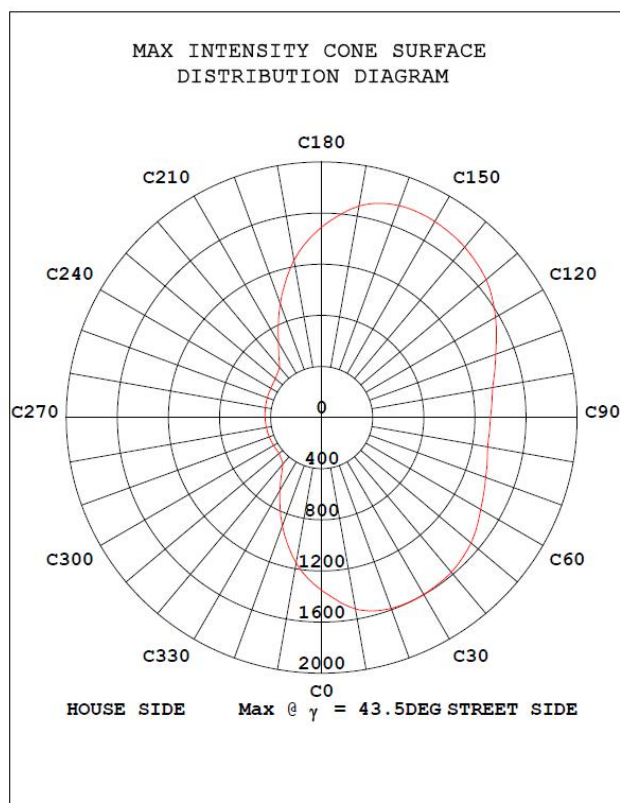
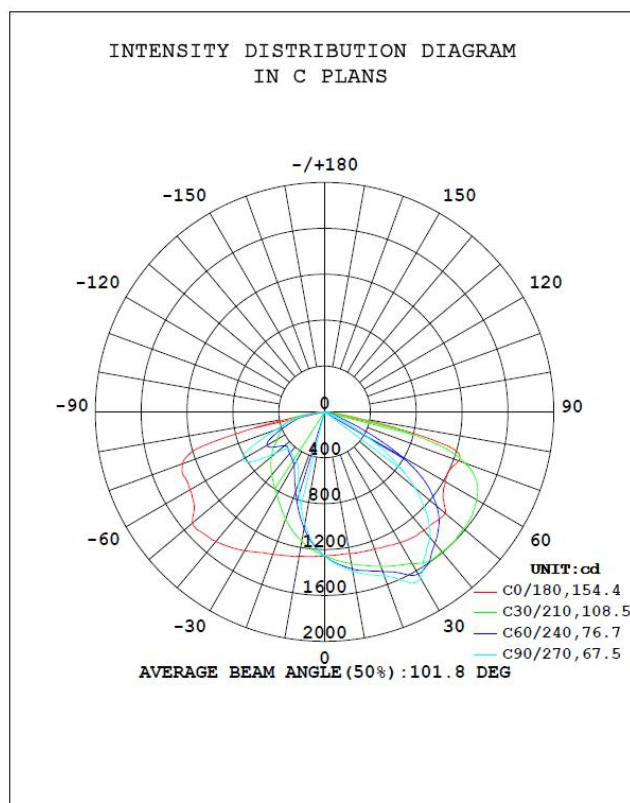
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.01	0.1443	0.9693	30.78

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	ZL (0~90°)	ZL (80~90°)
Output	4714.41	153.16	100%	0.9%

5.2 Luminous Intensity Distribution Diagram and C0 Plane Isolux Diagram (Unit : lx)





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TESTING
NVLAP LAB CODE 600112-0

Report No.: LCS200901052BS

5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum, lamp
10	1253	1372	1410	1395	1277	1089	993.3	1074	0- 10	118.7	118.7	2.52, 2.52
20	1272	1461	1517	1522	1321	844.6	664.8	837.2	10- 20	340.7	459.4	9.74, 9.74
30	1316	1583	1669	1695	1396	638.0	496.0	628.2	20- 30	543.9	1003	21.3, 21.3
40	1348	1568	1428	1722	1475	518.3	458.2	485.0	30- 40	724.7	1728	36.7, 36.7
50	1372	1491	1028	1660	1505	451.7	562.5	403.5	40- 50	843.8	2572	54.6, 54.6
60	1220	1215	421.7	1410	1355	415.3	825.1	365.2	50- 60	883.9	3456	73.3, 73.3
70	1245	577.9	82.31	747.2	1318	307.9	450.1	271.0	60- 70	765.4	4221	89.5, 89.5
80	253.0	35.59	2.470	36.39	248.8	193.5	159.2	169.4	70- 80	451.8	4673	99.1, 99.1
90	0	0	0	0	0	0	0	0	80- 90	41.58	4714	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	4714	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	4714	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	4714	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	4714	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	4714	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	4714	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	4714	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	4714	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	4714	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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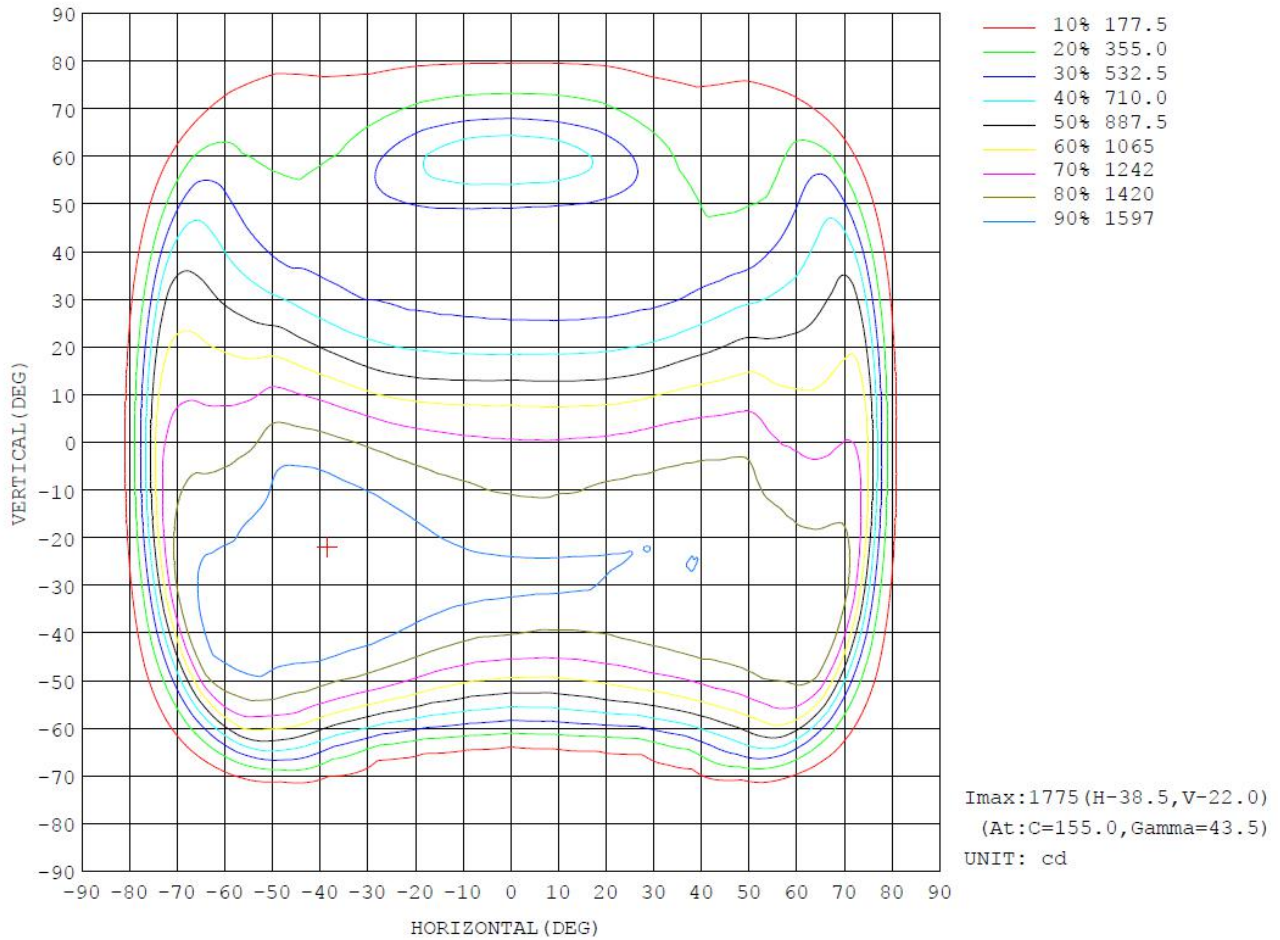
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NVLAP LAB CODE 600112-0

Report No.: LCS200901052BS

5.4 Isocandela Diagram





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NVLAP LAB CODE 600112-0

Report No.: LCS200901052BS

5.5 Luminous Distribution Intensity Data

Table--1

UNIT: cd

C (DEG) γ (DEG)	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
0	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254	1254
5	1251	1260	1268	1278	1287	1296	1301	1306	1310	1315	1320	1325	1329	1331	1333	1335	1338	1339	1337
10	1253	1271	1289	1305	1318	1332	1344	1353	1361	1372	1382	1386	1389	1393	1396	1399	1404	1408	1410
15	1262	1289	1315	1339	1358	1374	1386	1397	1408	1420	1425	1427	1433	1439	1445	1449	1451	1458	1469
20	1272	1313	1349	1381	1402	1419	1433	1445	1454	1461	1466	1472	1479	1487	1495	1502	1508	1513	1517
25	1289	1339	1377	1412	1439	1463	1477	1490	1497	1506	1519	1534	1549	1565	1580	1595	1609	1616	1621
30	1316	1371	1411	1449	1482	1510	1528	1546	1565	1583	1599	1615	1631	1644	1655	1656	1653	1660	1669
35	1337	1400	1448	1494	1537	1570	1590	1598	1595	1592	1589	1590	1594	1576	1547	1531	1520	1524	1531
40	1348	1425	1496	1546	1579	1593	1593	1587	1579	1568	1556	1530	1497	1469	1444	1427	1414	1419	1428
45	1358	1445	1525	1570	1589	1597	1598	1590	1578	1547	1508	1460	1409	1364	1322	1292	1265	1262	1263
50	1372	1448	1506	1544	1566	1577	1584	1570	1546	1491	1425	1351	1276	1207	1139	1090	1045	1035	1028
55	1263	1356	1445	1504	1550	1566	1570	1533	1479	1389	1290	1185	1080	985	893	829	770	753	740
60	1220	1327	1431	1496	1546	1548	1533	1454	1359	1215	1062	914	770	672	580	519	461	440	422
65	1203	1327	1448	1510	1556	1520	1466	1317	1146	938	726	552	385	302	230	198	167	159	153
70	1245	1384	1519	1556	1571	1448	1300	1066	818	578	342	235	143	121	107	97.8	88.7	85.4	82.3
75	1053	1140	1238	1235	1210	1066	891	653	404	255	116	82.0	60.2	49.1	39.1	34.2	29.9	28.5	27.3
80	253	274	294	278	258	212	159	110	54.4	35.6	18.8	13.2	8.34	6.33	4.33	3.62	2.99	2.69	2.47
85	20.8	21.8	21.9	18.1	12.7	9.11	4.44	3.46	2.22	1.75	1.36	1.11	0.89	0.72	0.58	0.53	0.49	0.48	0.48
90	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	0.00
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	0.00
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	0.00
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	0.00
110	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	0.00
115	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	0.00
120	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	0.00
125	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	0.00
130	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	0.00
135	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	0.00
140	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	0.00
145	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	0.00
150	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	0.00
155	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	0.00
160	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	0.00
165	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	0.00
170	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	0.00
175	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	0.00
180	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	0.00



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6. Photo of sample:



----- End of test report -----

TRF No. LM-79-2008

Page 10 of 10

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