



Testing Lab.

Shenzhen Southern LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-01

Report No.: LCS200518074BS

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-52-120W-4000K
Rating..... : AC220V, 50/60Hz, 120W, 4000K
Date of Test..... : May 21, 2020
Date of Issue..... : May 22, 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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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.

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2. Product Information

Product description.....:	LED Street Light
Model Number.....:	ST-52-120W-4000K
Rated Inputs.....:	AC220V, 50/60Hz
Rated Power.....:	120W
Declared CCT.....:	4000K
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.....:	May 20, 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	2019/07/01	2020/07/01
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2019/07/01	2020/07/01
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2019/07/01	2020/07/01
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2019/07/08	2020/07/08
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2019/07/01	2020/07/01
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2019/07/01	2020/07/01
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2019/07/01	2020/07/01
SENSING	Standard Lamp	SLCS-S-118	S11010017	2019/07/08	2020/07/08



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4. Integrating Sphere Test Results:

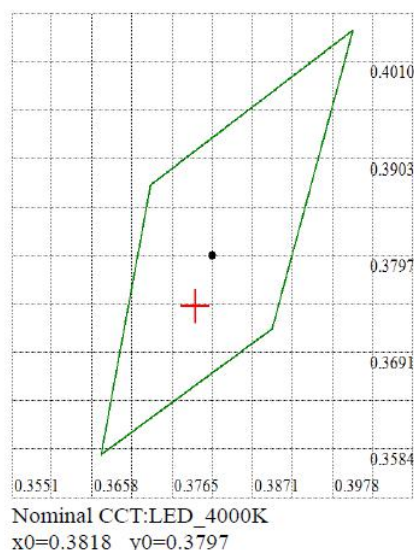
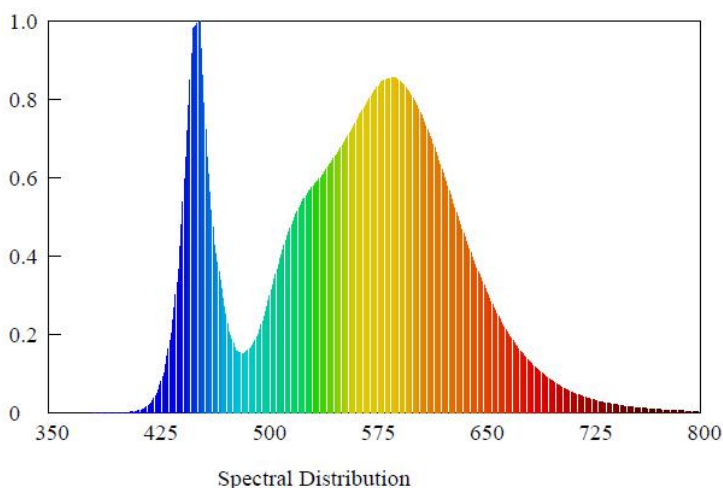
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.0	0.555	0.988	120.6

Test type	CCT (K)	CRI	Duv	Luminous flux (lm)	Luminous efficacy(lm/W)
Output	4005	74.9	-0.00099	18475.92	153.2

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.3795 y=0.3741 u'=0.2256 v'=0.5003

Correlated Color Temperature: 4005 K

Colour Fidelity Index: Rf=73

Luminous Flux: 18475.92 lm

Chromaticity Difference: -0.00099Duv

Color Ratio: Kr=38.3% Kg=53.9% Kb=7.8%

Bandwidth: 19.3nm

Photosynthetically Active Radiation(PAR): 58.61W

Rendering Index: Ra=74.9

R1=72 R2=83 R3=91 R4=72 R5=72 R6=76 R7=81 R8=52

R9=-25 R10=60 R11=68 R12=46 R13=75 R14=95 R15=66 Re=66

Dominant Wavelength: 578.0 nm(E)

Gamut Index: Rg=92

Purity: 0.2620

Peak Wavelength: 455.0 nm

Radiant Flux: 59.542 W

Photosynthetic Photon Flux(PPF):274.86μmol/s



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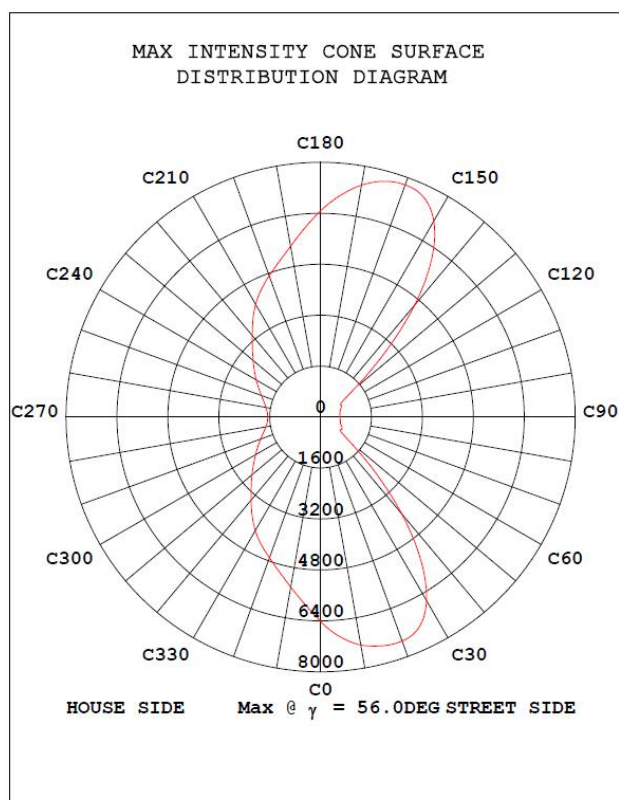
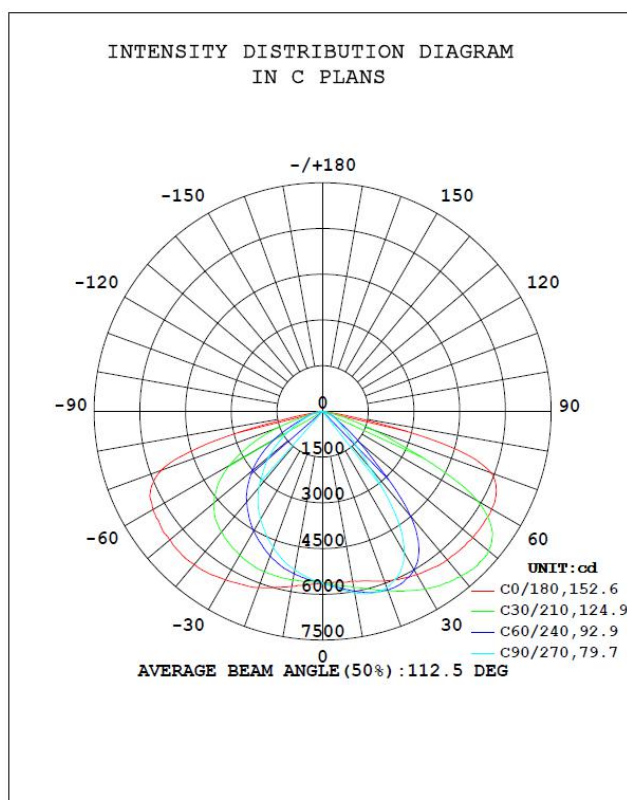
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	219.9	50.01	0.5545	0.9879	120.5

Test type	Total Flux (lm)	Luminous efficacy(lm/W)	ZL (0~90°)	ZL (80~90°)
Output	18452.4	153.14	100.0%	0.4%

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





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5.3 Zonal Flux Diagram

γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	lum, lamp
10	5659	5917	6033	6036	5824	5493	5282	5381	0- 10	541.8	541.8	2.94, 2.94
20	5924	6271	6151	6493	6147	5294	4747	5117	10- 20	1630	2172	11.8, 11.8
30	6173	6470	5343	6792	6379	4970	4077	4772	20- 30	2646	4818	26.1, 26.1
40	6356	6199	2421	6607	6557	4525	3256	4364	30- 40	3367	8185	44.4, 44.4
50	6431	4364	1022	4992	6557	3759	2287	3709	40- 50	3526	11712	63.5, 63.5
60	6407	1344	464.7	1623	6427	2515	1261	2619	50- 60	3245	14956	81.1, 81.1
70	5879	329.2	178.9	369.0	5626	836.5	567.5	983.4	60- 70	2436	17392	94.3, 94.3
80	773.1	48.75	9.007	41.17	552.5	236.4	239.1	252.5	70- 80	991.3	18384	99.6, 99.6
90	0	0	0	0	0	0	0	0	80- 90	68.85	18452	100, 100
100	0	0	0	0	0	0	0	0	90-100	0	18452	100, 100
110	0	0	0	0	0	0	0	0	100-110	0	18452	100, 100
120	0	0	0	0	0	0	0	0	110-120	0	18452	100, 100
130	0	0	0	0	0	0	0	0	120-130	0	18452	100, 100
140	0	0	0	0	0	0	0	0	130-140	0	18452	100, 100
150	0	0	0	0	0	0	0	0	140-150	0	18452	100, 100
160	0	0	0	0	0	0	0	0	150-160	0	18452	100, 100
170	0	0	0	0	0	0	0	0	160-170	0	18452	100, 100
180	0	0	0	0	0	0	0	0	170-180	0	18452	100, 100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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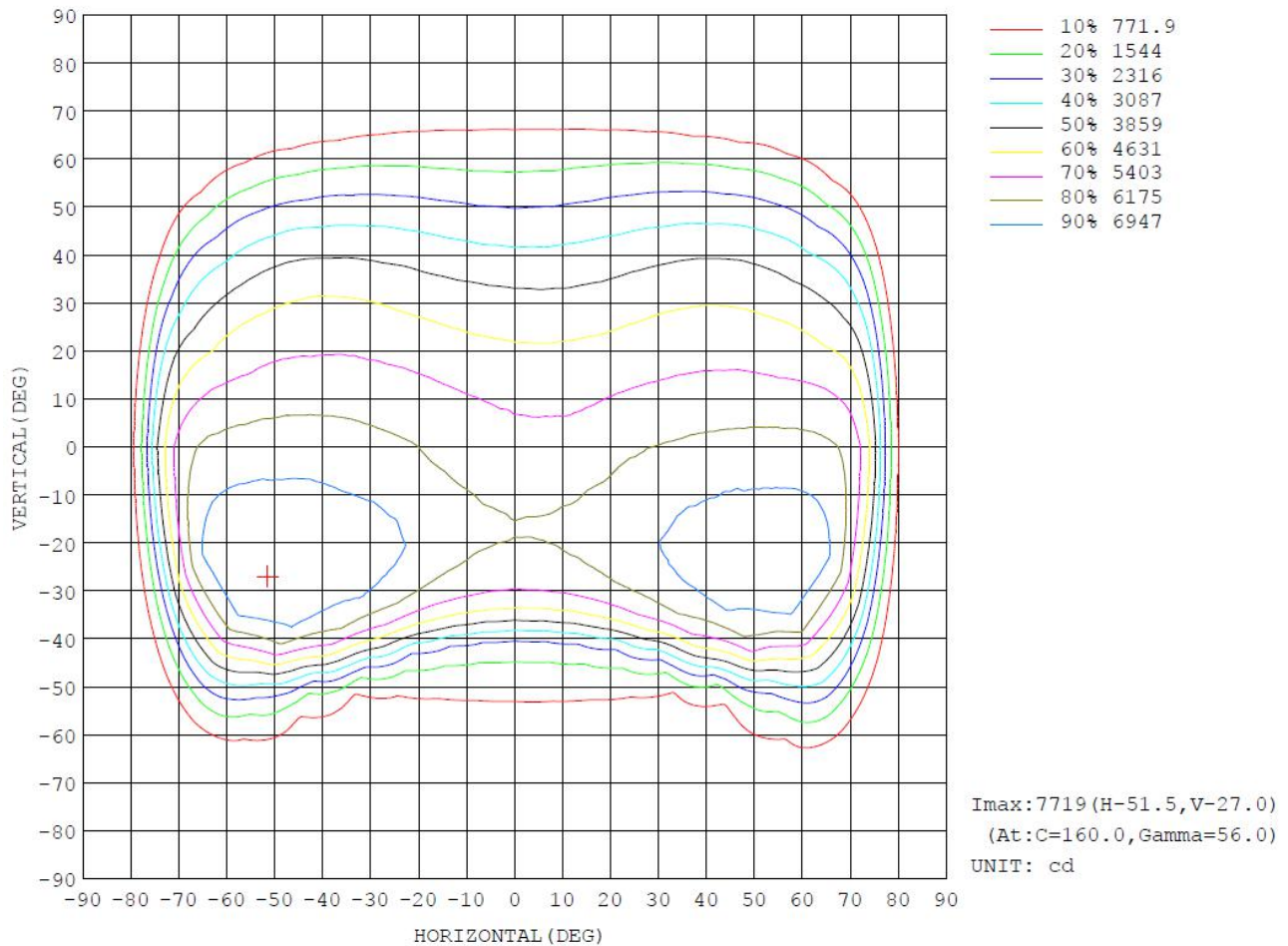
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5.4 Isocandela Diagram





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5.5 Luminous Distribution Intensity Data

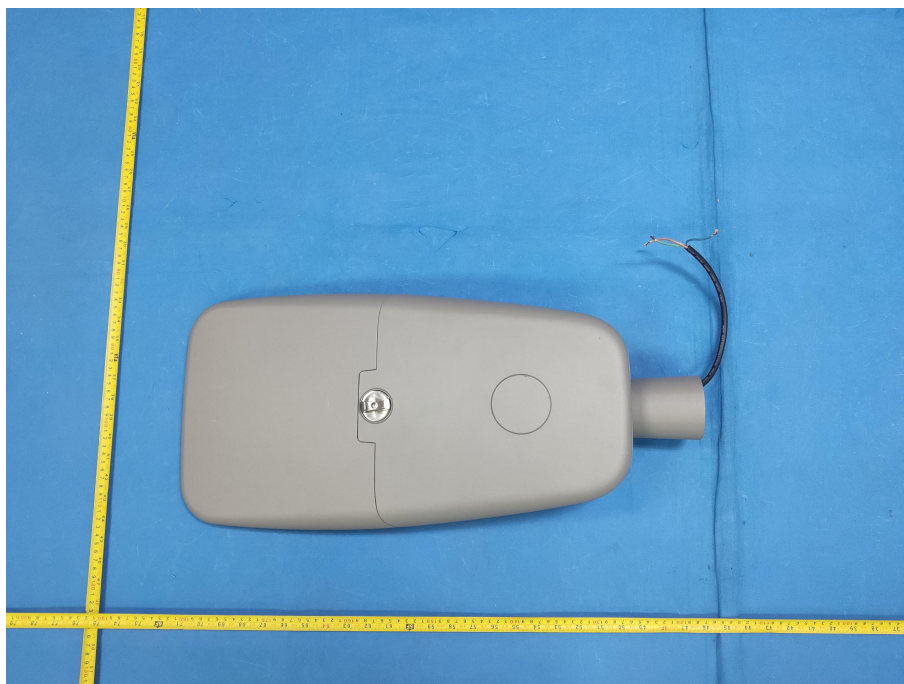
Table--1

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	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629	5629
5	5619	5659	5660	5720	5733	5766	5794	5801	5819	5831	5839	5829	5829	5817	5811	5803	5765	5735	5703
10	5659	5737	5777	5858	5896	5939	5987	5998	6034	6033	6067	6058	6051	6046	6027	5997	5942	5877	5824
15	5757	5852	5931	6034	6092	6132	6154	6158	6177	6178	6196	6217	6234	6267	6260	6257	6181	6090	5976
20	5924	6060	6152	6257	6270	6273	6235	6185	6152	6151	6198	6265	6348	6450	6536	6544	6449	6302	6147
25	6058	6257	6413	6490	6461	6327	6200	6039	5930	5910	5962	6124	6333	6581	6759	6825	6700	6508	6264
30	6173	6460	6652	6729	6612	6328	5999	5666	5432	5343	5480	5778	6164	6636	6948	7037	6933	6683	6379
35	6273	6653	6863	6911	6693	6189	5510	4832	4368	4226	4445	5005	5716	6510	7050	7233	7127	6844	6498
40	6356	6805	7074	7058	6653	5745	4494	3324	2600	2421	2693	3525	4783	6162	7051	7384	7311	6995	6557
45	6400	6955	7231	7163	6422	4789	2741	1877	1588	1521	1599	1960	3089	5308	6845	7498	7466	7134	6590
50	6431	7083	7366	7115	5739	2989	1572	1194	1061	1022	1054	1212	1683	3724	6260	7493	7632	7252	6557
55	6434	7248	7473	6783	4371	1400	873	727	678	661	665	713	860	1718	4997	7218	7722	7382	6510
60	6407	7373	7431	5873	2077	612	537	505	476	465	474	500	531	633	2613	6283	7652	7467	6427
65	6286	7299	6700	3715	719	415	373	346	319	305	319	343	367	419	1050	3987	6710	7294	6242
70	5879	6294	4679	1759	397	262	229	203	185	179	185	202	226	261	477	1931	4495	5924	5626
75	4066	3654	2330	688	186	131	108	86.6	74.1	69.9	72.6	84.8	104	124	196	673	1845	2781	3521
80	773	699	515	179	59.6	37.9	22.9	14.2	10.4	9.01	9.44	12.6	19.7	32.5	49.9	126	310	388	552
85	47.9	43.7	33.2	15.9	6.49	2.73	1.55	1.26	1.04	1.04	0.89	1.04	1.19	1.56	3.05	8.42	18.1	27.0	40.6
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 -----