



Testing Lab.

Shenzhen LCS Compliance Testing Laboratory Ltd.



TESTING
NVLAP LAB CODE 600112-0

Report No.:LCS171221041BS

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, Bao' an District,
Shenzhen, Guangdong, China

Brand Name..... : Sinoco

Testing laboratory..... : Shenzhen 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-52-100W-3000K

Rating..... : 100-240Vac, 50/60Hz, 100W, 3000K

Test by: William Lian

Signature: *William*

Reviewed by: Han Qiu

Signature: *Han Qiu*



Test date: January 04, 2018

Reviewed date: January 12, 2018

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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-52-100W-3000K
Rated Inputs.....:	100-240VAC, 50/60Hz
Rated Power.....:	100W
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.....:	January 03, 2018
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	2017/08/15	2018/08/14
EVERFINE	Digital Power Meter	SLCS-S-103	PF2010	2017/08/15	2018/08/14
EVERFINE	AC Testing Power Source	SLCS-S-115	DPS1060	2017/08/15	2018/08/14
EVERFINE	Total Spectral Radiant Flux Standard Lamp	SLCS-S-143	D908S	2017/08/14	2018/08/13
SENSING	2 Meter Integrating Sphere	SLCS-S-038	SPR-3000	2017/08/15	2018/08/14
YOKOGAWA	Digital Power Meter	SLCS-S-058	WT310	2017/08/15	2018/08/14
ALL POWER ELECTRONIC	AC Testing Power Source	SLCS-S-111	APW-105N	2017/08/15	2018/08/14
SENSING	Standard Lamp	SLCS-S-118	S11010017	2017/08/14	2018/08/13



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4. Integrating Sphere Test Results:

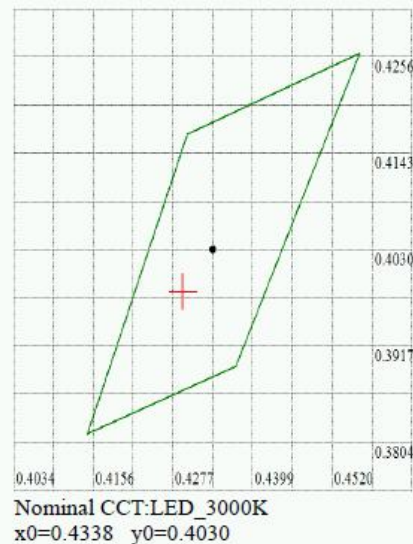
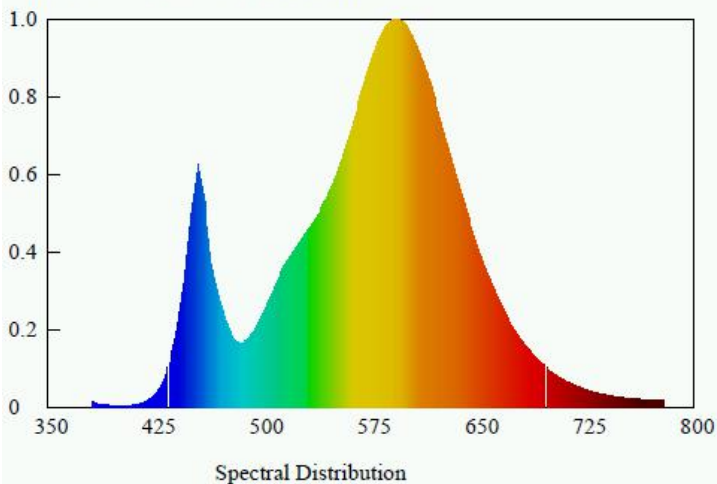
4.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.0	50.0	0.476	0.982	102.9

Test type	CCT (K)	CRI	Luminous flux (lm)	Luminous efficacy(lm/w)
Output	3085	72.6	13075.90	127.1

4.2 Spectrum

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.4292$ $y=0.3981$ $u'=0.2482$ $v'=0.5179$

Correlated Color Temperature: 3085 K

Colour Fidelity Index: $R_f=73$

Luminous Flux: 13075.90 lm

Chromaticity Difference: $-0.0013Duv$

Color Ratio: $K_r=44.9\%$ $K_g=48.6\%$ $K_b=6.5\%$

Bandwidth: 103nm

Photosynthetically Active Radiation(PAR): 32.09W

Rendering Index: $R_a=72.6$

$R_1=69$ $R_2=86$ $R_3=93$ $R_4=66$ $R_5=69$ $R_6=81$ $R_7=75$ $R_8=41$

$R_9=-35$ $R_{10}=69$ $R_{11}=62$ $R_{12}=56$ $R_{13}=74$ $R_{14}=97$ $R_{15}=61$ $R_e=64$

Dominant Wavelength: 581.0 nm(E)

Gamut Index: $R_g=91$

Purity: 0.4863

Peak Wavelength: 595.0 nm

Radiant Flux: 32.84 W

Photosynthetic Photon Flux(PPF):154.31 μ mol/s

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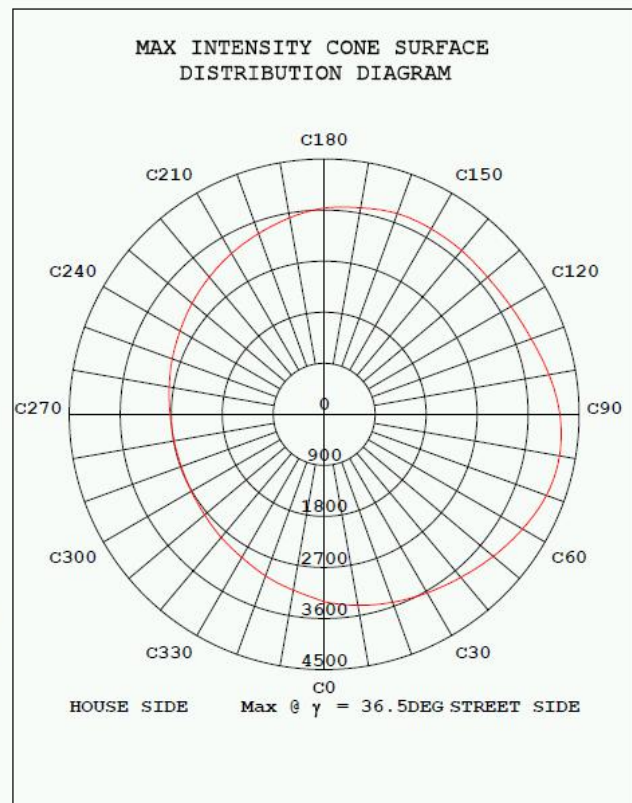
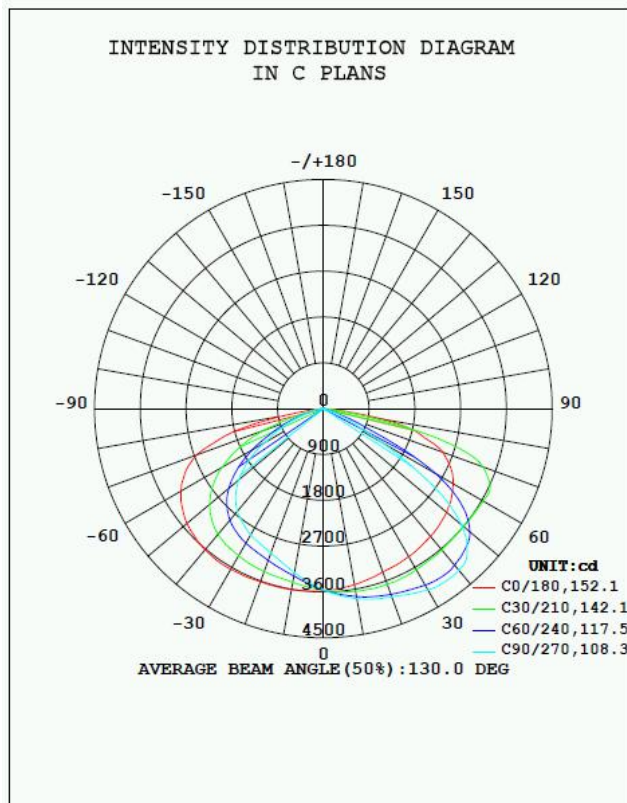
5. Goniophotometer Test results

5.1 Test Data

Test type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	220.1	50.00	0.4769	0.9825	103.1

Test type	Total Flux (lm)	Luminous efficacy(lm/w)	ZL (0~90°)	ZL (80~90°)
Output	13063.2	126.70	99.80%	0.60%

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





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5.3 Zonal Flux Diagram

y	C0	C45	C90	C135	C180	C225	C270	C315	y	Φ zone	Φ total	%lum, lamp
10	3511	3707	3787	3722	3609	3399	3272	3300	0- 10	338.2	338.2	2.59,2.59
20	3415	3787	3932	3804	3619	3282	3019	3079	10- 20	994.5	1333	10.2,10.2
30	3356	3823	4109	3789	3642	3186	2860	2902	20- 30	1606	2938	22.5,22.5
40	3274	3806	4143	3748	3616	3034	2631	2721	30- 40	2146	5084	38.9,38.9
50	3163	3697	3545	3679	3505	2657	2169	2416	40- 50	2521	7605	58.2,58.2
60	2946	3348	1923	3379	3236	1923	1333	1862	50- 60	2509	10114	77.4,77.4
70	2495	1701	277.1	1830	2645	838.3	575.3	952.8	60- 70	1927	12041	92.2,92.2
80	1137	78.37	21.20	57.29	784.1	134.9	155.8	165.9	70- 80	919.1	12960	99.2,99.2
90	3.023	1.478	0.1590	0.9169	2.620	0.4391	0	0.6349	80- 90	80.07	13040	99.8,99.8
100	2.541	0.7950	0	0.3973	3.580	2.110	0.1590	2.070	90-100	1.391	13042	99.8,99.8
110	3.097	0.9142	0.2321	0.7925	5.088	4.253	1.594	4.373	100-110	2.154	13044	99.9,99.9
120	3.494	1.628	1.192	1.548	4.916	4.928	4.135	5.959	110-120	3.083	13047	99.9,99.9
130	4.526	3.258	2.862	2.660	4.367	4.531	5.326	5.680	120-130	3.477	13051	99.9,99.9
140	5.715	4.768	4.610	3.892	4.447	4.692	5.962	5.760	130-140	3.540	13054	99.9,99.9
150	6.591	6.312	5.720	5.239	5.006	6.124	6.446	6.676	140-150	3.482	13058	100,100
160	6.750	6.595	6.436	6.074	6.194	6.920	6.995	7.035	150-160	2.953	13060	100,100
170	7.464	7.750	7.313	6.912	6.750	7.472	7.631	7.547	160-170	1.964	13062	100,100
180	8.179	8.028	7.551	7.547	7.782	7.948	7.631	7.547	170-180	0.7244	13063	100,100
DEG	LUMINOUS INTENSITY:cd									UNIT:lm		



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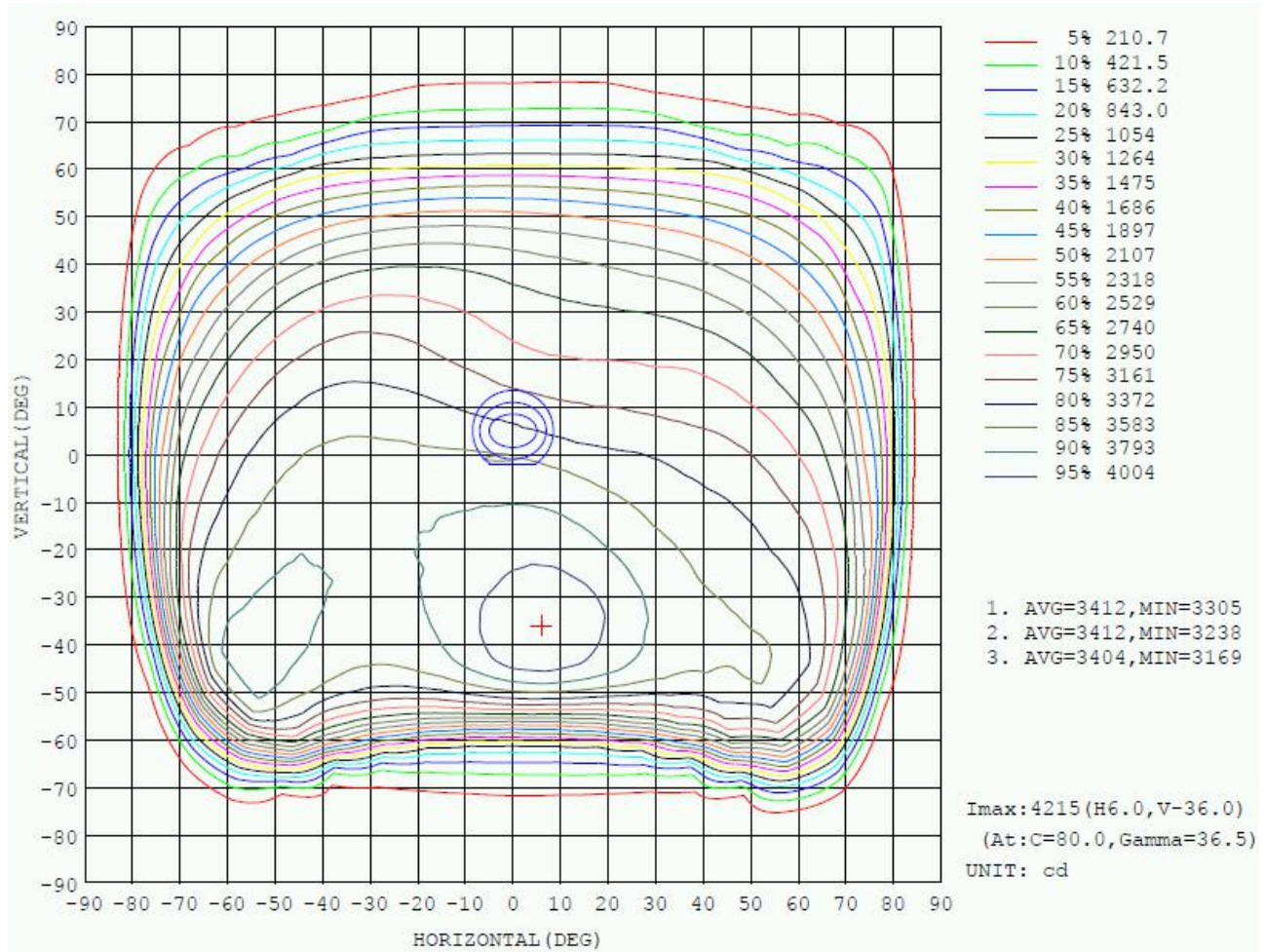
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5.4 Isocandela Diagram





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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	3577	3574	3572	3569	3565	3563	3561	3558	3555	3554	3551	3549	3546	3544	3540	3538	3536	3533	3577
5	3551	3565	3588	3613	3636	3644	3657	3677	3679	3684	3680	3672	3669	3656	3637	3617	3594	3573	3593
10	3511	3553	3594	3640	3695	3719	3745	3772	3778	3787	3780	3768	3757	3731	3712	3679	3649	3611	3609
15	3462	3530	3594	3662	3726	3781	3820	3850	3864	3868	3856	3833	3821	3791	3767	3716	3679	3628	3613
20	3415	3505	3585	3674	3751	3822	3881	3923	3945	3932	3905	3870	3845	3815	3793	3740	3702	3647	3619
25	3389	3475	3575	3670	3760	3855	3936	4008	4037	4019	3958	3894	3846	3810	3798	3760	3724	3666	3635
30	3356	3452	3552	3654	3766	3879	4000	4103	4140	4109	4012	3912	3835	3794	3784	3765	3744	3682	3642
35	3318	3427	3532	3634	3756	3898	4040	4169	4209	4156	4032	3904	3815	3772	3777	3774	3762	3694	3643
40	3274	3405	3518	3622	3737	3875	4013	4143	4197	4143	3997	3848	3764	3737	3758	3781	3776	3695	3616
45	3228	3387	3504	3599	3699	3808	3928	4033	4061	4003	3867	3755	3693	3677	3738	3793	3790	3688	3570
50	3163	3355	3501	3598	3659	3736	3760	3710	3624	3545	3482	3478	3534	3623	3734	3816	3794	3657	3505
55	3074	3310	3502	3610	3635	3561	3335	3005	2716	2611	2704	2908	3183	3466	3733	3840	3797	3608	3389
60	2946	3265	3505	3631	3527	3170	2543	1821	1439	1323	1416	1825	2499	3116	3643	3890	3808	3546	3236
65	2768	3171	3504	3621	3261	2353	1158	755	633	605	624	748	1277	2422	3386	3908	3850	3467	3004
70	2495	2989	3394	3338	2572	831	405	317	286	277	271	284	338	924	2736	3602	3730	3224	2645
75	1989	2533	2872	2441	889	216	148	118	111	108	106	106	126	166	912	2004	2482	2292	1930
80	1137	1028	1218	675	103	53.5	30.2	24.9	24.0	21.2	21.4	21.2	24.3	38.1	76.4	374	479	437	784
85	128	50.4	44.9	21.5	6.42	3.36	1.75	1.03	0.72	0.64	0.56	0.64	0.95	2.01	4.47	8.36	13.7	17.4	57.0
90	3.02	3.18	3.10	2.55	1.83	1.12	0.64	0.24	0.24	0.16	0.08	0.24	0.32	0.64	1.20	2.07	2.63	3.03	2.62
95	2.54	2.46	2.14	1.67	1.19	0.65	0.32	0.16	0.08	0.00	0.08	0.08	0.16	0.24	0.64	1.35	1.99	2.47	2.94
100	2.54	2.30	2.06	1.51	1.03	0.56	0.24	0.16	0.08	0.00	0.08	0.08	0.16	0.24	0.56	1.11	1.75	2.31	3.58
105	2.69	2.30	2.06	1.51	1.03	0.56	0.32	0.32	0.24	0.00	0.08	0.08	0.24	0.24	0.56	1.19	1.75	2.31	4.45
110	3.10	2.46	2.06	1.51	1.27	0.56	0.32	0.24	0.24	0.23	0.16	0.16	0.24	0.55	1.03	1.35	1.83	2.39	5.09
115	3.18	2.70	2.22	1.59	1.27	1.34	1.03	0.56	0.79	0.64	0.78	0.71	0.87	1.27	1.28	1.75	2.31	2.94	5.16
120	3.49	2.86	2.46	1.91	1.75	1.51	1.42	1.19	1.35	1.19	1.19	1.35	1.27	1.51	1.59	1.83	2.55	2.94	4.92
125	3.89	3.66	3.09	2.85	2.54	2.54	2.22	2.30	2.14	2.22	2.06	2.06	1.98	2.14	2.23	2.54	3.02	3.66	4.37
130	4.53	4.13	3.73	3.73	3.42	3.10	3.02	3.01	2.86	2.86	2.62	2.69	2.78	2.62	2.70	3.02	3.74	4.06	4.37
135	5.08	4.61	4.13	4.05	4.13	3.73	3.81	3.74	3.66	3.73	3.81	3.64	3.57	3.00	3.33	3.88	3.82	4.29	4.37
140	5.72	5.56	5.23	5.09	5.01	4.53	5.00	5.00	4.61	4.61	4.29	4.36	4.36	3.97	3.82	4.29	5.10	5.25	4.45
145	6.51	6.28	6.03	5.72	5.49	5.72	5.72	5.64	5.48	5.25	5.08	5.23	5.16	5.16	4.45	4.85	5.18	5.73	4.61
150	6.59	6.44	6.35	6.36	6.35	6.28	6.20	6.36	6.12	5.72	5.40	5.40	5.39	5.39	5.09	5.16	5.33	5.73	5.01
155	6.67	6.67	6.59	6.52	6.52	6.52	6.36	6.36	6.36	6.12	5.87	5.79	5.64	5.72	5.89	5.55	5.65	6.20	5.65
160	6.75	6.75	6.59	6.52	6.52	6.67	6.67	6.52	6.36	6.44	6.36	6.34	6.35	6.10	6.04	5.95	5.82	6.36	6.19
165	7.38	7.39	6.91	6.84	7.00	7.23	7.46	7.15	6.60	6.92	6.91	6.43	6.59	6.27	6.44	6.43	6.37	6.76	6.35
170	7.46	7.79	7.54	7.63	7.71	7.79	7.79	7.63	7.30	7.31	7.46	6.98	7.30	6.91	6.92	6.91	6.93	7.08	6.75
175	8.18	8.03	7.86	7.87	8.03	8.02	7.79	7.71	7.55	7.55	7.62	7.53	7.62	7.38	7.55	7.54	7.48	7.48	7.86
180	8.18	8.03	7.86	7.87	8.03	8.02	7.79	7.71	7.71	7.55	7.62	7.46	7.69	7.46	7.63	7.55	7.56	7.72	7.78



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6. Photo of sample:



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

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