



UL Verification Services Inc.  
7036 Snowdrift Road  
Allentown, PA 18106  
610-774-1300



## Photometric Test Report

### Relevant Standards

IES LM-79-2008, ANSI C82.77-10-2014, CIE 13.3-1995  
CIE 15-2004, ANSI C78.377-2017, IES TM-30-2018

### Prepared For

## Industrial Lighting Products Inc

519 Codisco Way  
Sanford, FL 32771  
United States

### Catalog Number

**8.5PLV-835-HYBM**

Order Number

13059881

Test Number

13059881.01

### Test Date

2019-10-02 - 2019-10-03

### Prepared By

Derek Smarr, Technician

### Approved By

Kevin Rodriguez, Project Handler

The results contained in this report pertain only to the tested sample.

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Laboratory results may not be representative of field performance  
Ballast factors have not been applied

Testing was performed in a 2-meter integrating sphere using the  $4\pi$  geometry method.  
Absorption correction was employed for Sphere measurement



**Lamp Description:** Formed white plastic base. Frosted plastic lens enclosure  
**Lamp:** 42 White LEDs  
**Lamp Catalog Number:** 8.5PLV-835-HYBM  
**Ballast/Driver:** None

**Lamp**



**Lamp Characteristics**

Luminous Diameter: 3.50 in.

**Summary of Results**

**Integrating Sphere**

Luminous Flux: 1049 Lumens  
Efficacy: 121.7 lm/w  
CCT: 3416 K  
CRI (Ra): 83.3

**Distribution**

Total Lamp Output: 1054 Lumens  
Lamp Efficacy: 122.4 lm/w  
Maximum Candela: 480 Candela

**Electrical Data at 120 VAC**

Test Temperature: 24.9 °C  
Voltage: 120.0 VAC  
Current: 0.07350 A  
Power: 8.620 W  
Power Factor: 0.977  
Frequency: 60 Hz  
Current THD: 20.2 %



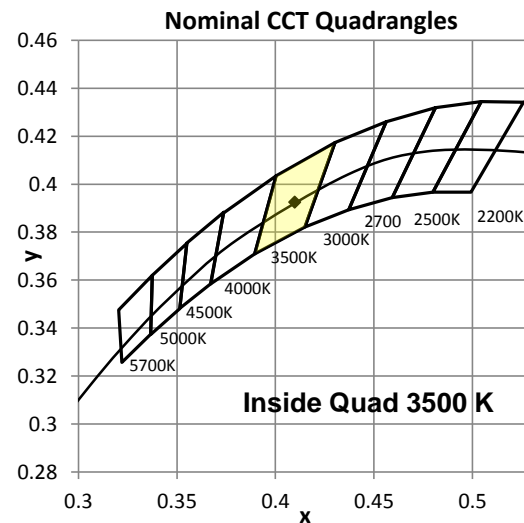
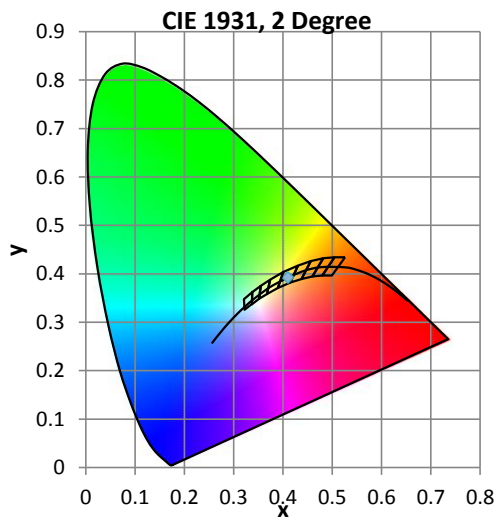
## Color Quality - Integrating Sphere

### Integrating Sphere Test Conditions

Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.9 °C	120.0 VAC	0.07350 A	8.620 W	0.977	60 Hz	20.2 %

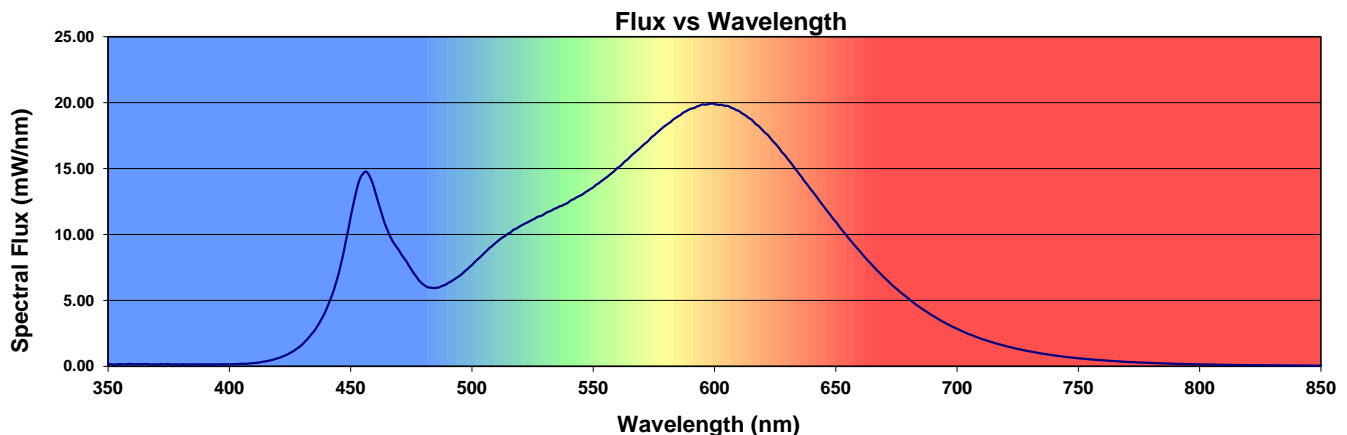
### Summary of Results

<b>Total Output:</b>	1049 Lumens	<b>Chromaticity (x):</b>	0.4098
<b>Efficacy:</b>	121.7 lm/w	<b>Chromaticity (y):</b>	0.3925
<b>CCT:</b>	3416 K	<b>Chromaticity (u'):</b>	0.2379
<b>CRI (Ra):</b>	83.3	<b>Chromaticity (v'):</b>	0.5127
<b>CRI (R9):</b>	9.8	<b>TM-30 Rf:</b>	84.3
<b>Peak Wavelength:</b>	599 nm	<b>TM-30 Rg:</b>	93.6
<b>Dominant Wavelength:</b>	581 nm	<b>Duv:</b>	0.0006
<b>S/P Ratio:</b>	1.54		



### Color Rendering Index Detail

Ra (CRI)	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
83.3	82.3	92.8	95.1	79.9	82.3	90.3	83.0	61.1	9.8	82.7	78.8	68.8	85.2	98.0	75.2





## Distribution - Goniophotometer

### Distribution Test Conditions

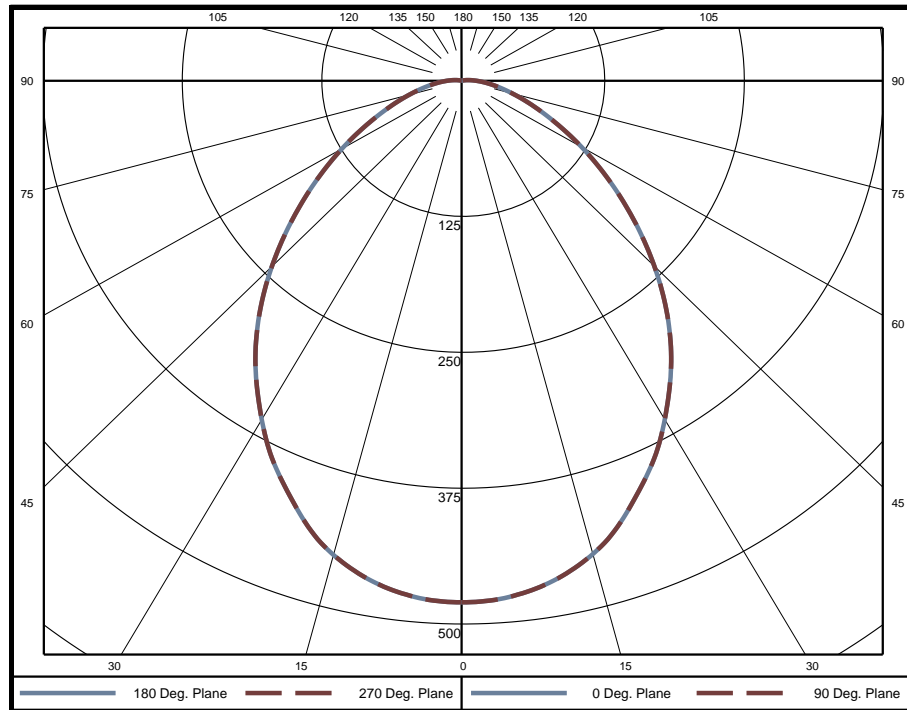
Temperature	Voltage	Current	Power	Power Factor	Frequency	Current THD
24.2 °C	120.0 VAC	0.07345 A	8.609 W	0.977	60 Hz	20.1 %

### Summary of Results

**Spacing Criteria**  
 0-180: 1.13  
 90-270: 1.13

**Total Lumen Output:** 1054 Lumens  
**Lamp Efficacy:** 122.4 lm/w  
**Maximum Candela:** 480 Candela

### Polar Plot



### Zonal Lumen Summary

Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire	Zone	Lumens	% of Luminaire
0-5	11.4	1.1%	60-65	51.6	4.9%	120-125	0	0.0%
5-10	33.8	3.2%	65-70	39.7	3.8%	125-130	0	0.0%
10-15	54.4	5.2%	70-75	29.6	2.8%	130-135	0	0.0%
15-20	72.1	6.8%	75-80	21.2	2.0%	135-140	0	0.0%
20-25	85.6	8.1%	80-85	14.6	1.4%	140-145	0	0.0%
25-30	95.1	9.0%	85-90	9.3	0.9%	145-150	0	0.0%
30-35	100.0	9.5%	90-95	5.3	0.5%	150-155	0	0.0%
35-40	100.7	9.6%	95-100	2.5	0.2%	155-160	0	0.0%
40-45	96.5	9.2%	100-105	0.8	0.1%	160-165	0	0.0%
45-50	88.0	8.3%	105-110	0.1	0.0%	165-170	0	0.0%
50-55	76.9	7.3%	110-115	0.0	0.0%	170-175	0	0.0%
55-60	64.4	6.1%	115-120	0	0.0%	175-180	0	0.0%

Zone	Lumens	% of Luminaire
0-40	553	52.5%
0-60	879	83.4%
0-90	1045	99.1%
90-180	9	0.8%



### Candela Tabulation

Horizontal Angle (Degrees)

Vertical Angle (Degrees)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
	0	479.9	479.9	479.9	479.9	479.9	479.9	479.9	479.9	479.9	479.9	479.9	479.9	479.9	479.9	479.9
	5	477.0	477.0	477.0	477.0	477.0	477.0	477.0	477.0	477.0	477.0	477.0	477.0	477.0	477.0	477.0
	10	467.1	467.1	467.1	467.1	467.1	467.1	467.1	467.1	467.1	467.1	467.1	467.1	467.1	467.1	467.1
	15	450.1	450.1	450.1	450.1	450.1	450.1	450.1	450.1	450.1	450.1	450.1	450.1	450.1	450.1	450.1
	20	423.8	423.8	423.8	423.8	423.8	423.8	423.8	423.8	423.8	423.8	423.8	423.8	423.8	423.8	423.8
	25	393.2	393.2	393.2	393.2	393.2	393.2	393.2	393.2	393.2	393.2	393.2	393.2	393.2	393.2	393.2
	30	358.4	358.4	358.4	358.4	358.4	358.4	358.4	358.4	358.4	358.4	358.4	358.4	358.4	358.4	358.4
	35	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6	321.6
	40	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0	282.0
	45	239.4	239.4	239.4	239.4	239.4	239.4	239.4	239.4	239.4	239.4	239.4	239.4	239.4	239.4	239.4
	50	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0	197.0
	55	157.6	157.6	157.6	157.6	157.6	157.6	157.6	157.6	157.6	157.6	157.6	157.6	157.6	157.6	157.6
	60	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1	122.1
	65	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2	91.2
	70	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6	66.6
	75	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4	47.4
	80	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8	32.8
	85	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5	21.5
	90	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0
	95	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8	6.8
	100	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
	105	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	115	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	125	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	135	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	145	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	155	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	165	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	175	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

### Average Luminance (cd/m<sup>2</sup>)

Horizontal Angle (Degrees)

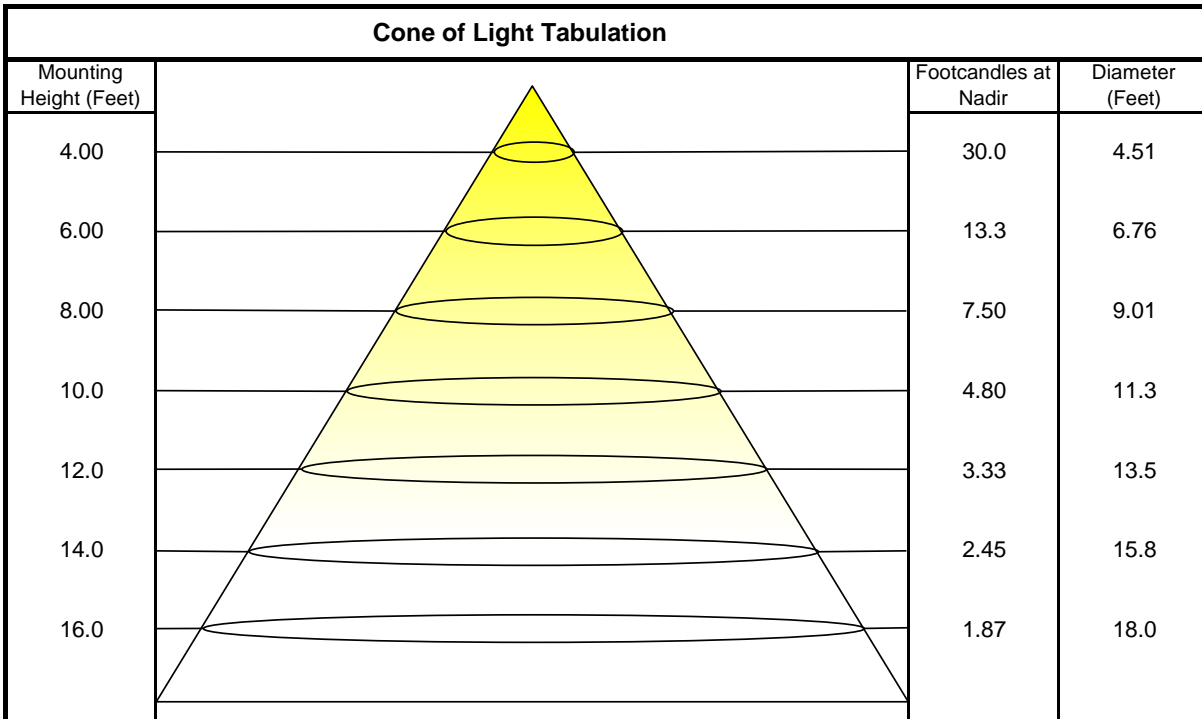
Vertical Angle (Degrees)	0	45	90
	0	77320	77320
	45	54550	54550
	55	44260	44260
	65	34760	34760
	75	29470	29470
	85	39800	39800



### Coefficients of Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 20%																		
Ceiling Cavity Reflectance	80				70				50			30			10			0
Wall Reflectance	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
Room Cavity Ratio (RCR)	** Values are expressed as percent of total lumen output delivered to the task surface **																	
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	101	101	101	99
1	109	105	101	97	107	103	99	96	98	95	92	94	92	89	90	88	87	85
2	100	93	86	81	98	91	85	80	87	82	78	84	80	76	81	77	74	72
3	92	82	75	69	90	81	74	68	78	72	67	75	70	66	72	68	64	62
4	85	74	66	59	83	72	65	59	70	63	58	67	62	57	65	60	56	54
5	79	66	58	52	77	65	57	51	63	56	51	61	55	50	59	54	50	48
6	73	60	52	46	71	59	51	46	58	50	45	56	49	45	54	49	44	42
7	68	55	47	41	66	54	46	41	53	46	40	51	45	40	50	44	40	38
8	63	51	42	37	62	50	42	37	48	41	36	47	41	36	46	40	36	34
9	59	47	39	33	58	46	38	33	45	38	33	44	37	33	43	37	33	31
10	56	43	36	31	55	43	35	30	42	35	30	41	34	30	40	34	30	28

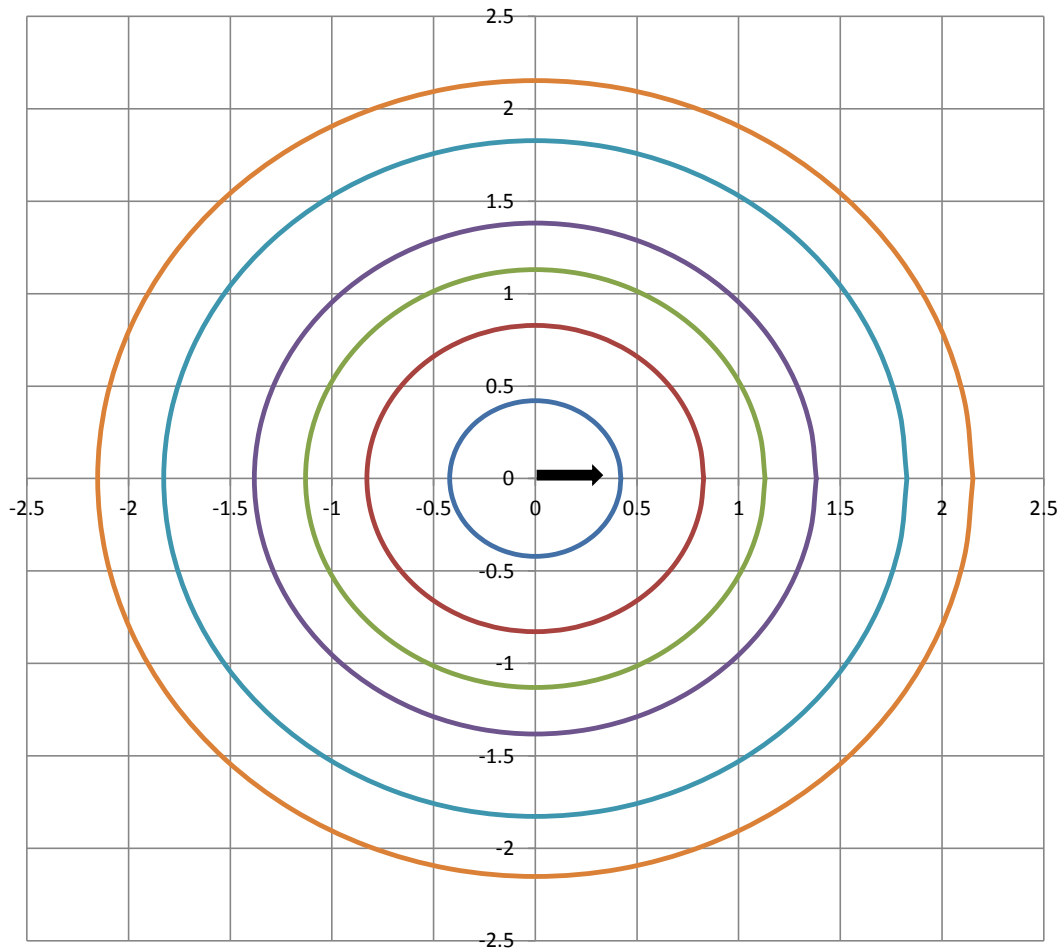
Beam and Field Information	
CIE Type:	Direct
Center Beam Intensity:	479.9 Candela
Central Cone Intensity:	479 Candela
Beam Flux:	648.6 Lumens
Beam Angle (0-180):	89.9 Degrees
Beam Angle (90-270):	89.9 Degrees
Field Angle (0-180):	149.6 Degrees
Field Angle (90-270):	149.6 Degrees





## ISOFootcandle Plot

Mounting Height - 8 Feet



Grid Lines in Units of Mounting Height

5 fc    2 fc    1 fc    0.5 fc    0.2 fc    0.1 fc