

# Phosphorescent Test #1

Thursday, December 12, 2024 8:05 AM

8am



32° F

East-facing area with southern exposure also. No western exposure.

10am - Direct sunlight



12:20pm Direct sun continues



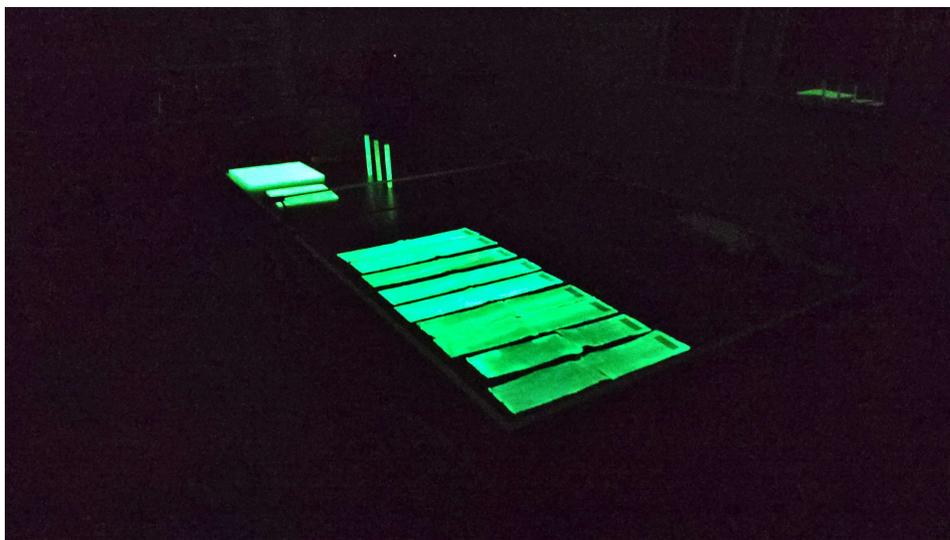
1:20pm - In shade the rest of the day



4:35pm - Windows blew some strips to ground. #6 and 7 are flipped on table. #8 and 9 are flipped and on ground



4:45pm. Set up on ping pong table in basement



Light meter at 31" (in lux)

1. Honeycomb - 0.3
2. 3 cylinders - 0.1
3. Square panel - 0.1
4. 8 straps - 0.1

6:30pm.

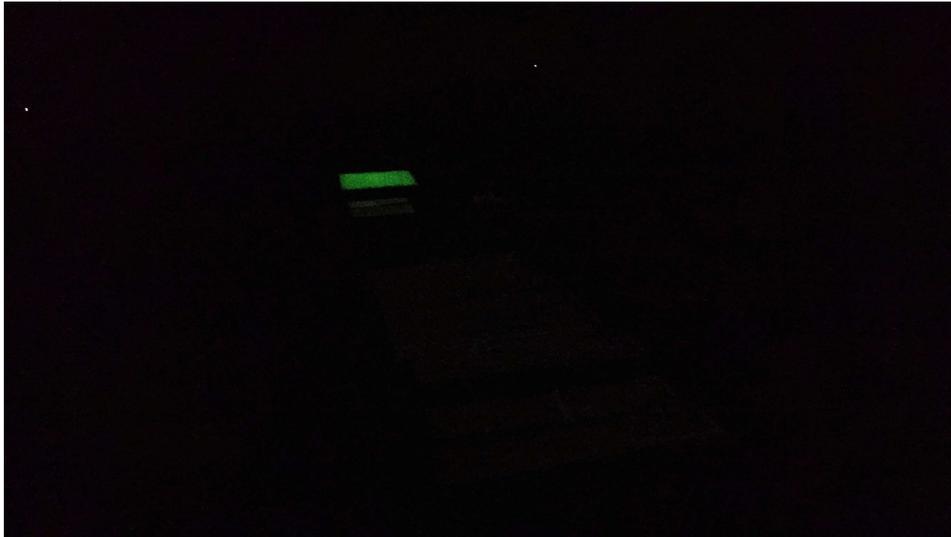


8:30pm



- At 8:30pm, none of the units produced measurable light at 31" height. I think i was wrong in advocating measurement at this height. Tomorrow I think I will measure at 2" height.
- Honeycomb was brightest unit. For fun, I put it on 7' ceiling of basement. With comb pattern facing down, I could see everything clearly within 10' of the light.
- Honeycomb pattern was facing up while the unit was outside charging. Tomorrow i will have it facing down to simulate how it would not accumulate water in the dimples during rain.

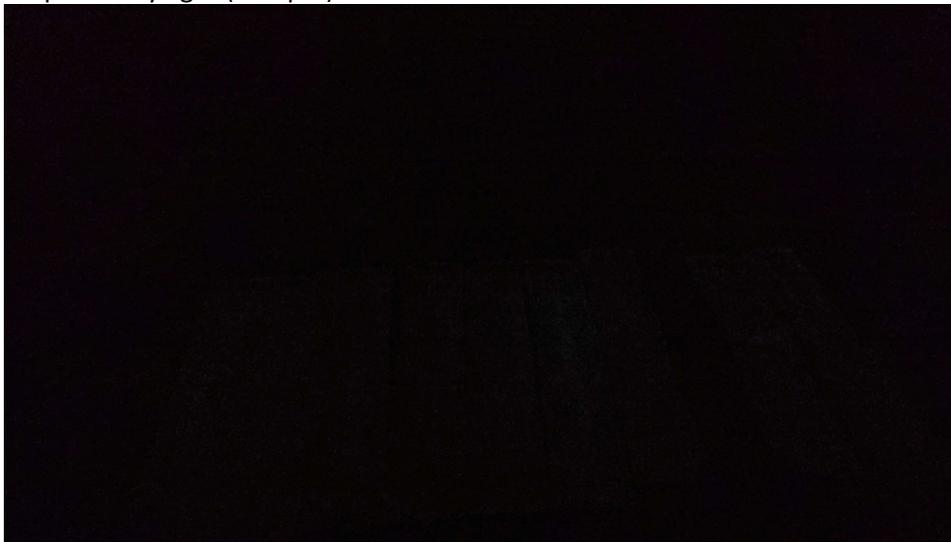
9:40pm



From a different angle (9:40pm)



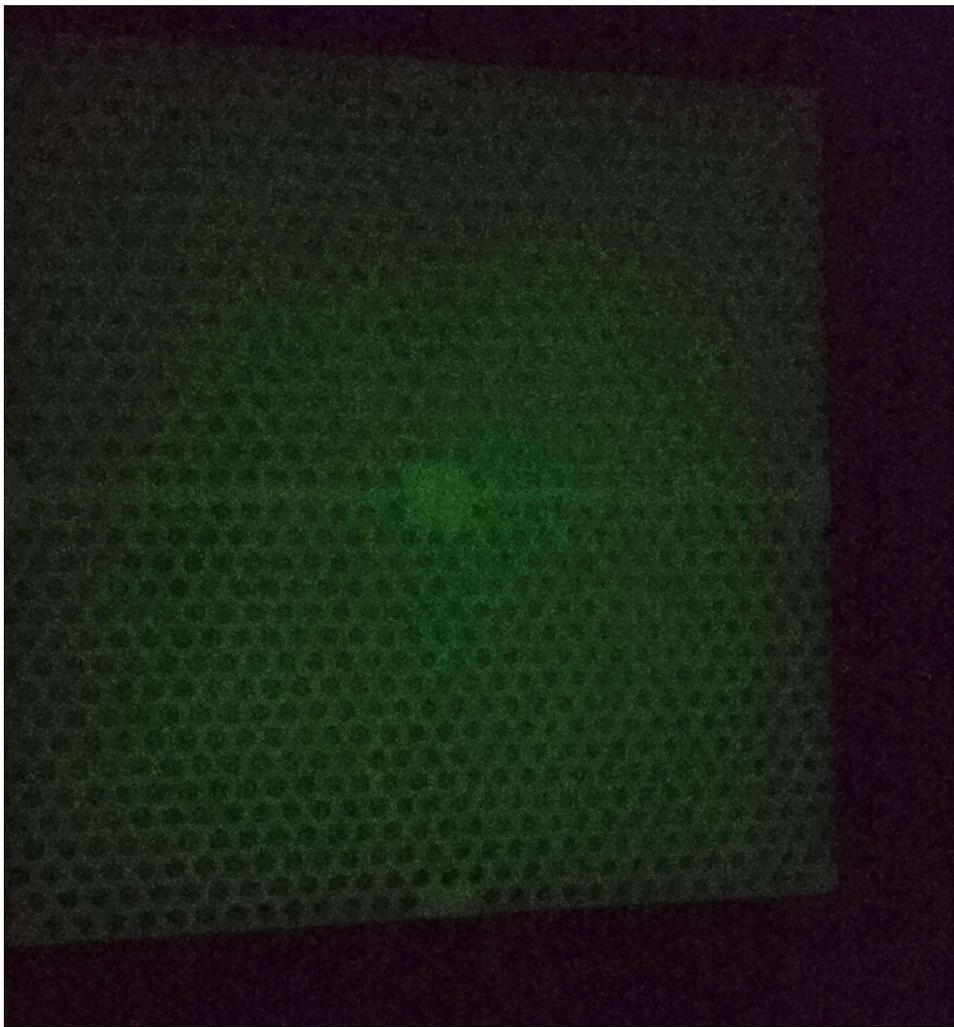
Strips as only light (9:40pm)

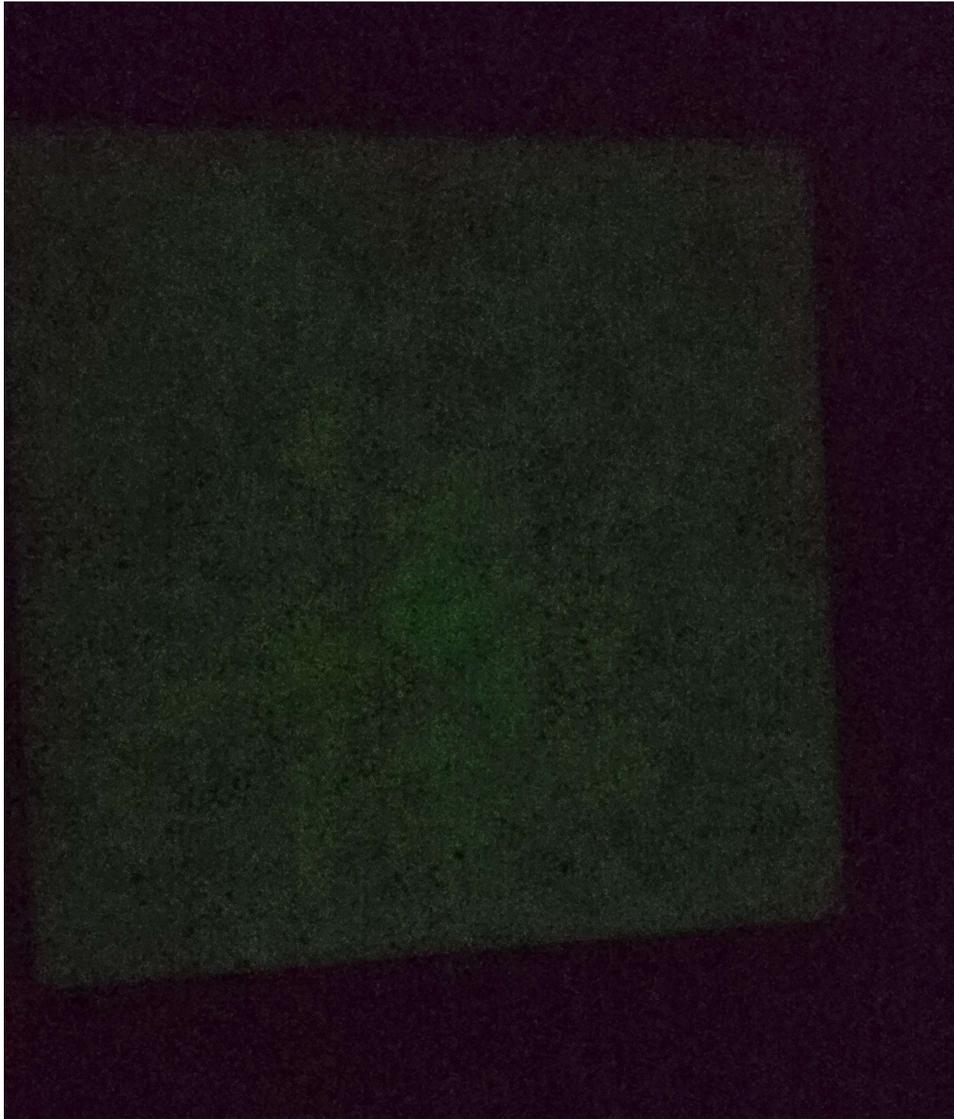


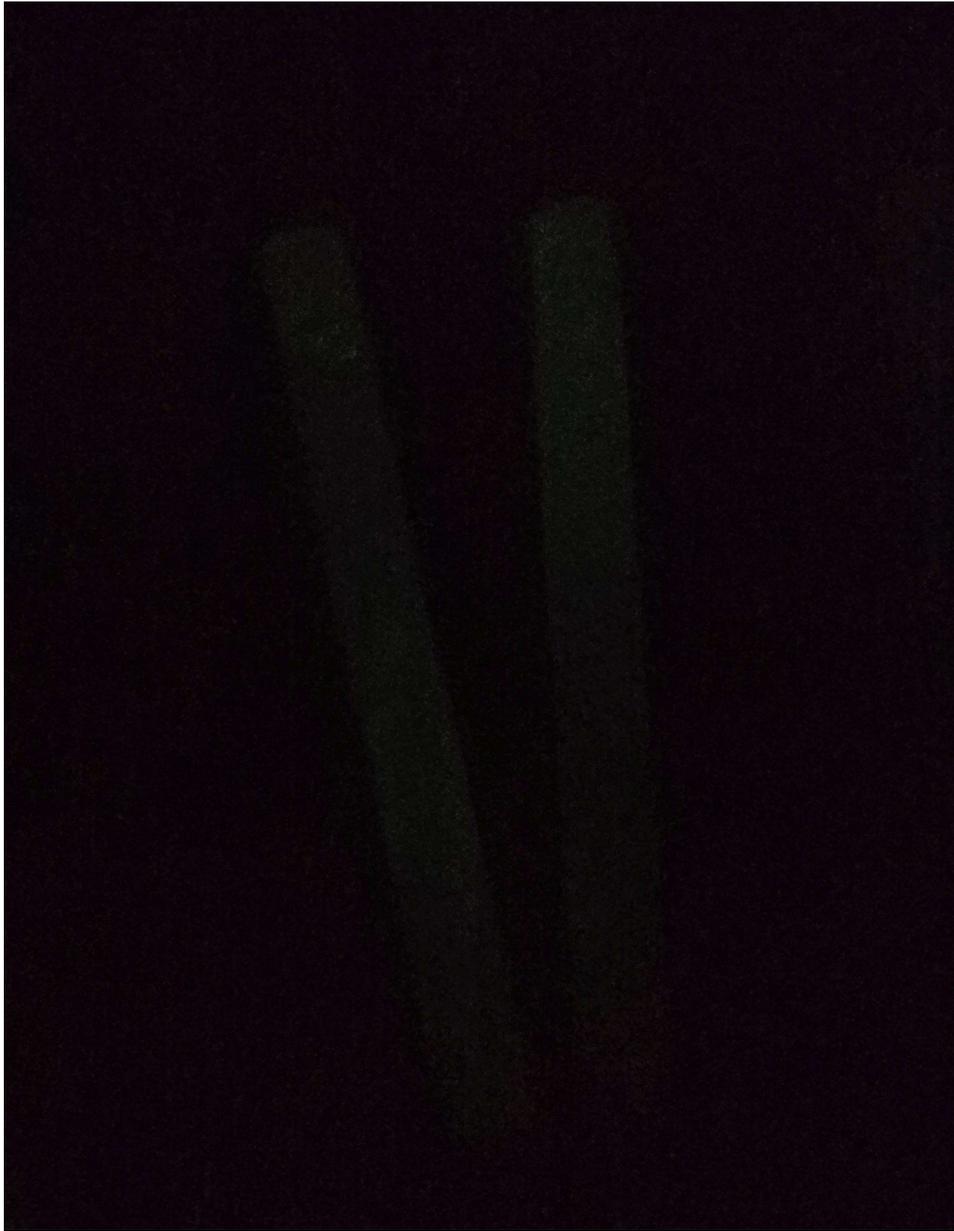
10:30pm - just the left side of table. Strips were not bright enough.



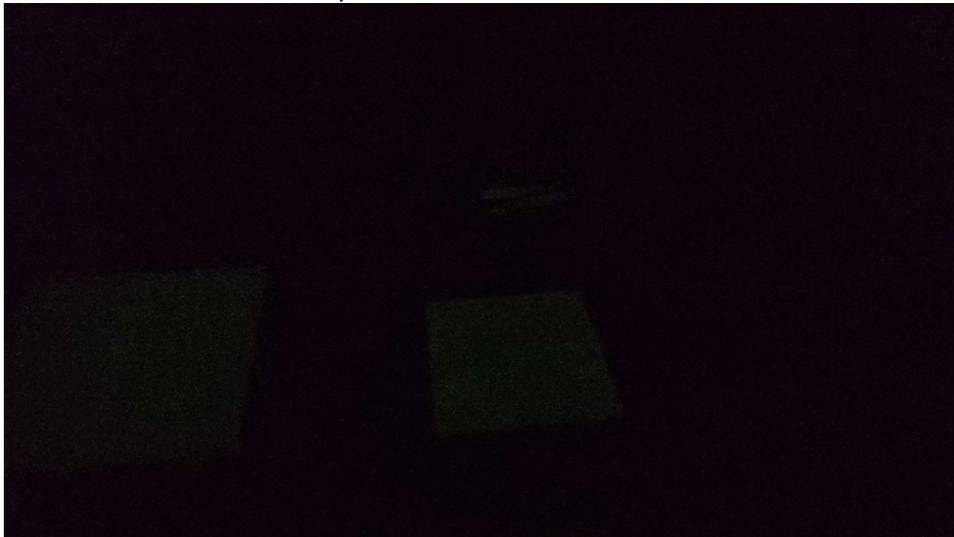
12:30am







3:15am left side of table only.



I put the Honeycomb on the 7' ceiling and I can still see the floor. The #3 cylinder is giving off

almost the same intensity light and the smaller square on the ceiling provides almost as much light intensity as the Honeycomb. Even the stripes are still visibly glowing but little effective light is emanating.

4:35am - Everything is glowing like it was at last checkin.



4:30am I can't see any noticeable difference in light output between the 2 different sides of the Honeycomb panel. But I can still see the floor with either side up and panel on 7' ceiling. Square panel gives off slightly less light so can't see floor with panel on ceiling.

4:30am. This is photo shoot area at rest with light turned on.



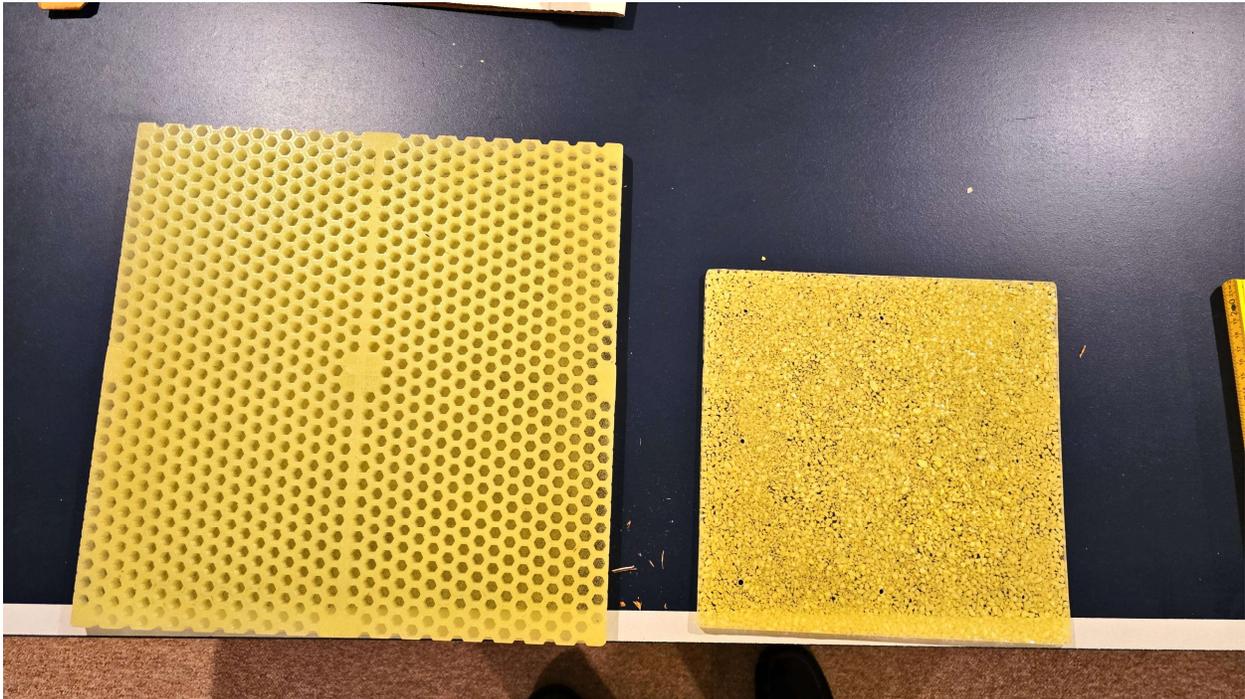
7:54am - Still a noticeable glow in every unit. But no measurement on the Lux scale. Putting any unit on the ceiling did not allow seeing the floor.

# Phosphorescent Test #2

Friday, December 13, 2024 3:29 PM

Prep work:

1. Make a cardboard jig so that the surface area of the Honeycomb can match the surface area of Phluo.



Honeycomb is 35.5 cm x 35.5 cm. Phluo is 25 cm x 25 cm.



Jig will allow a direct comparison of light output during next test.

Goals for the next testing episode:

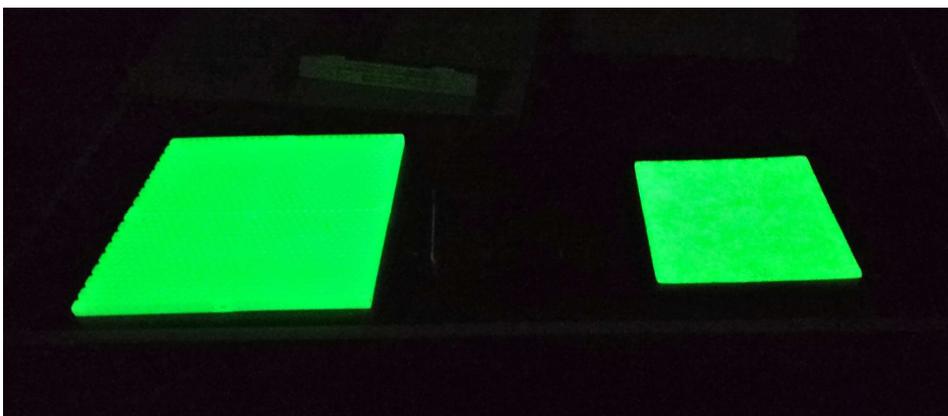
1. I want to test everything again with a south-facing sky in the coming days to see if that makes any difference.
2. I also want to flip the honeycomb unit to have its flat side face the sun while charging to see if this makes any difference in its performance.
3. Lastly, I want to measure Lux at the 1" distance for all my measurements and see if we can get numbers that match what is in the Honeycomb and Phluo submissions.

12/14/24 - 2:30pm. Deployed Honeycomb and 25x25cm panels vertically in direct sun. Pic below. 33°F. Bright sun with no clouds.



4:30pm moved both to basement.

- 25x25cm - 5.3 Lux reading with ruler width above panel.
- 36x36cm - flat side: 4.5 Lux; dimpled side: 4.4 except in flat center where it was 4.5 Lux



With jig on 36x36cm



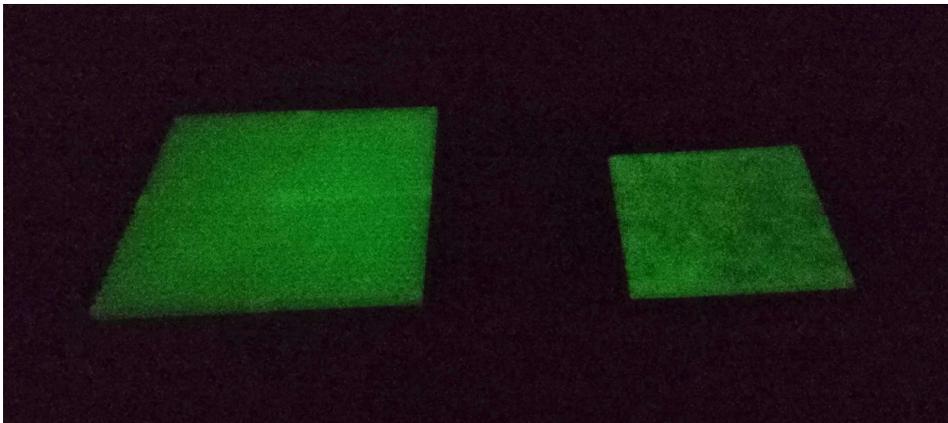
I held both on the 7' ceiling.

- 25x25cm allows clear (though dim) visibility of floor.
- 36x36cm with the jig allows the same visibility as the 25x25cm Phluo.
- 36x36cm with no jig provides maybe 5-15% more light on floor than the other 2 configurations

6:50pm

- Phluo - 0.2 Lux
- Honeycomb - 0.3 Lux

8:30pm



- Phluo - 0.1 Lux
- Honeycomb 0.2 Lux

10:30pm



1. Phluo - 0.1 fluctuating to 0.0 Lux
2. Honeycomb - 0.1 fluctuating to 0.0 Lux

No attempt to check on light levels after 10:30pm today. With only 2 hours of charging, it did not seem worth the effort.

# Phosphorescent Test #3

Monday, December 16, 2024 8:43 AM

12/15/24

8:12am -placed flat outside. Picture taken looking south. Overcast day so no direct sun today.



4:30pm was official sunset today. I was out so could not bring testing units inside at this time. They stayed in the day's position until I got home at 6:30pm.

All Lux measurements taken with sensor about half-inch above the light-emitting surface. Sensor is sitting on top of a foldable ruler to give it an easy resting place in the pitch dark of the room. See pic below.

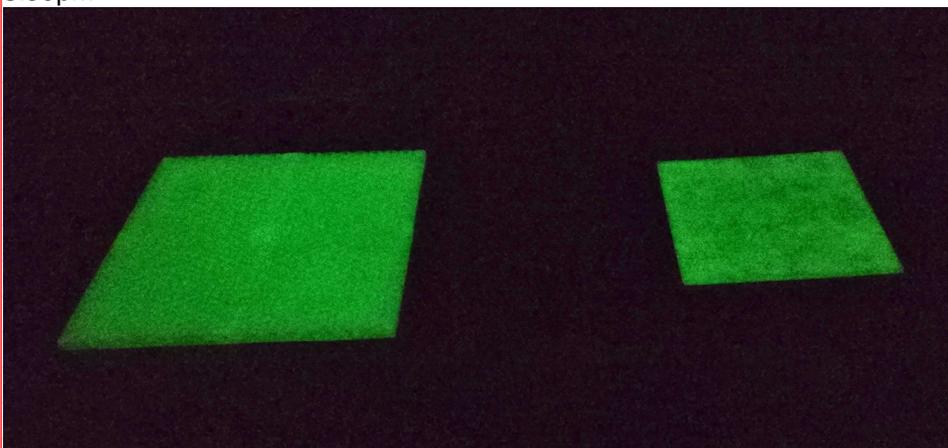


6:30pm. Brought panels inside. Outside cold air seemed to make them have limited glow. They seemed to get brighter as they warmed up.



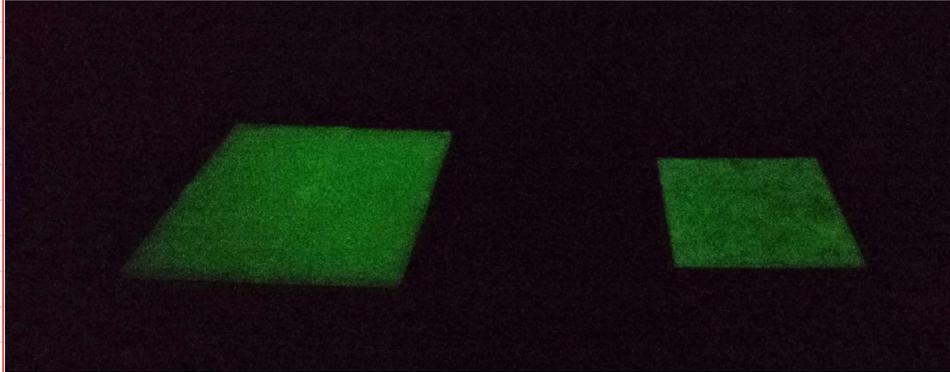
- Phluo - 0.4 Lux
- Honeycomb - 0.4 Lux

8:30pm



- Phluo - flashes between 0.1 and 0.2 Lux
- Honeycomb - flashes between 0.2 and 0.3 Lux
- Can faintly see objects on the floor with either rectangle on 7' ceiling

10:25pm



- Phluo - 0.1 Lux
- Honeycomb - fluctuating between 0.1 and 0.2 Lux

1am



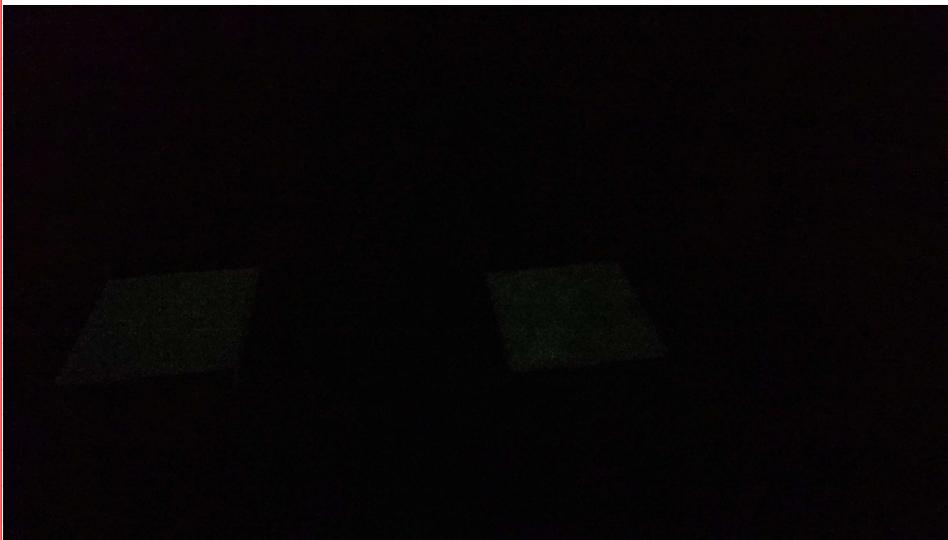
- Phloe - 0.0 Lux
- Honeycomb - fluctuating between 0.1 and 0.0
- Can still see the floor with both units as 25x25cm squares.

3:10am



- Phloe - fluctuating between 0.0 and 0.1 Lux
- Honeycomb - fluctuating between 0.0 and 0.1 Lux
- Can still see the floor with both units as 25x25cm squares.

4:30am



- Phloe - fluctuating between 0.0 and 0.1 Lux. Mostly at zero.
- Honeycomb - fluctuating between 0.0 and 0.1 Lux. Mostly at zero.
- Can still see the floor with both units as 25x25cm squares.

7:30am



- Phloe - fluctuating between 0.0 and 0.1 Lux. Mostly at zero.
- Honeycomb - fluctuating between 0.0 and 0.1 Lux. Mostly at zero.
- Can still see the floor with both units as 25x25cm squares.

# Phosphorescent Test #4

Tuesday, December 17, 2024 2:23 PM

Day's Objective: Test of 4 hours of charging to compare to 8 hours of charging.

2:40pm - Placed in direct sun

6:07 pm - Brought inside to basement Lux measurements are from 1/2" from the light source.

- Phluo - 0.7 Lux
- Honeycomb - 0.6-0.7 Lux on Honeycomb side
- Honeycomb - 0.5 on flat side
- 5YL - 20 Lux at close distance

8:35 pm

- Phluo - 0.1 Lux
- Honeycomb - 0.2 Lux on Honeycomb side

# Phosphorescent Test #5

Monday, December 23, 2024 9:29 AM

**Day's Objective:** Full 8 hours of charging and measurement of a full 12 hours of light output

9:30 am - 9°F



Day warmed up to 28°F.

4:45pm

In basement on ping pong table. Temp is 68°F.

- Phluo - 4.3 Lux from 1/2" above
- Honeycomb - 3.7-4.1 Lux from 1/2" above
- Strips - 1.5 Lux from 1/2" above



10:00pm



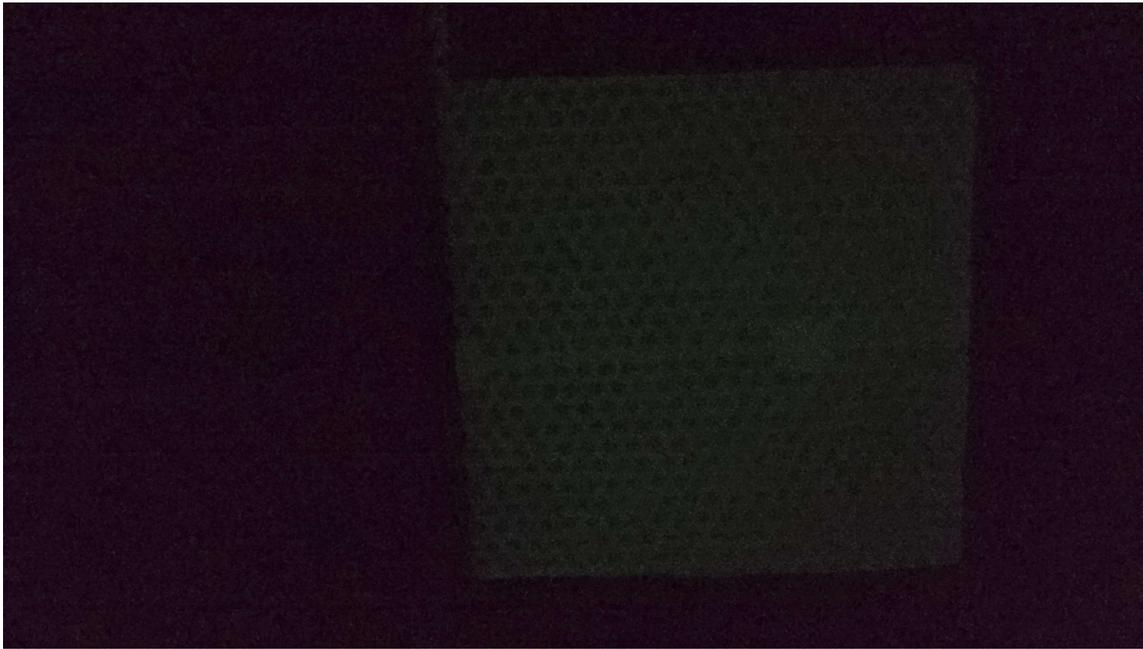
- Phluo - Between 0.0 and 0.2 Lux
- Honeycomb - Between 0.1 and 0.2
- Strips - Between 0.0 and 0.1 Lux

2:30am

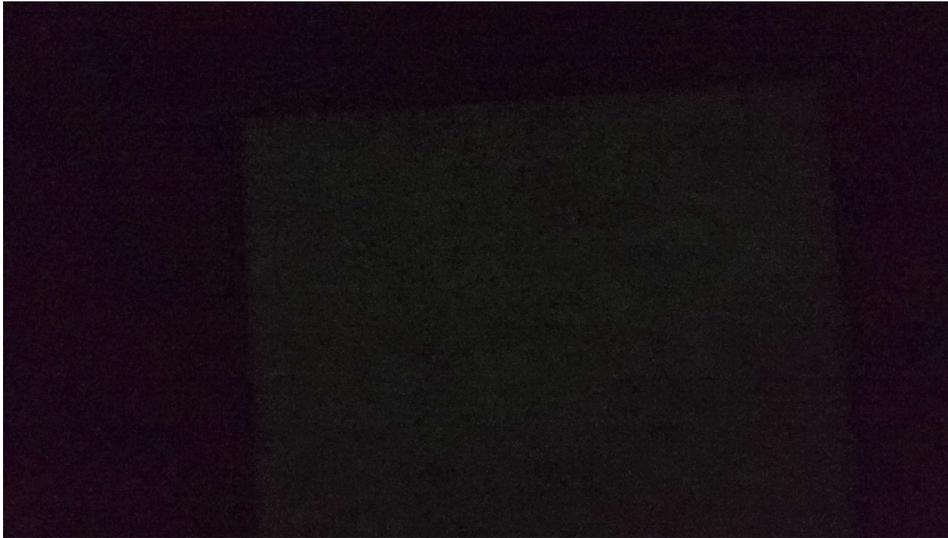


- Phluo - 0.0 Lux
- Honeycomb - Between 0.0 and 0.1 Lux
- Strips - 0.0 Lux

6:40am Honeycomb



6:40am - Phluo



- Phluo - Between 0.0 and 0.1 Lux. Mostly 0.0.
- Honeycomb - Between 0.0 and 0.1 Lux. Mostly 0.0.
- Can see the floor when either unit is held in 7' ceiling. Maybe Honeycomb (only 25x25 cm showing) is slightly brighter but very hard to distinguish between Phluo and Honeycomb in terms of which provides more illumination .

5YL Testing in same environment

- 88.0 Lux from 1/2" above light source. This intensity is from 1 point while the phosphorescent panels have 25x25 cm of very low intensity light providing illumination.
- When light is on 7' ceiling, it provides different color (white) light to the floor at a slightly but noticeably higher brightness than the phosphorescent panels. The difference is not measurable with our light meter.
- Also, the light is more concentrated to one point with the 5YL vs the phosphorescent panels. The 5YL creates a slight halo effect on the floor.
- Also, the brightness of the source makes it harder for my eyes to adjust to darkness and see the floor details because i am attracted to look at the 5YL point of light. The

phosphorescent panels were dimmer so did not affect my eye as much.

# Phosphorescent Test #6

Thursday, January 16, 2025 10:01 AM

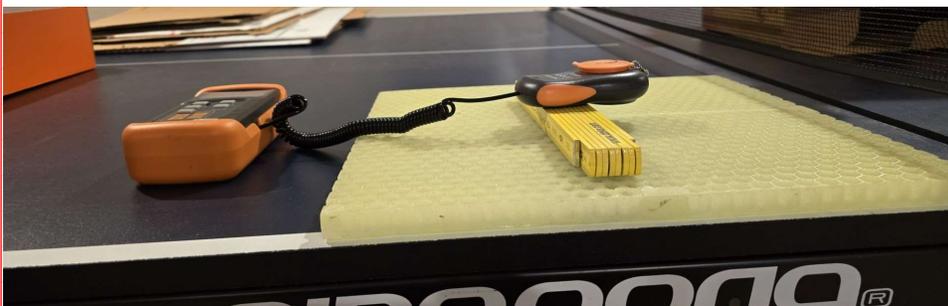
22 degrees F

10am - put units out in location with open south and west exposures. Placed on bush to reduce chance of radiation coming into bottom of unit.

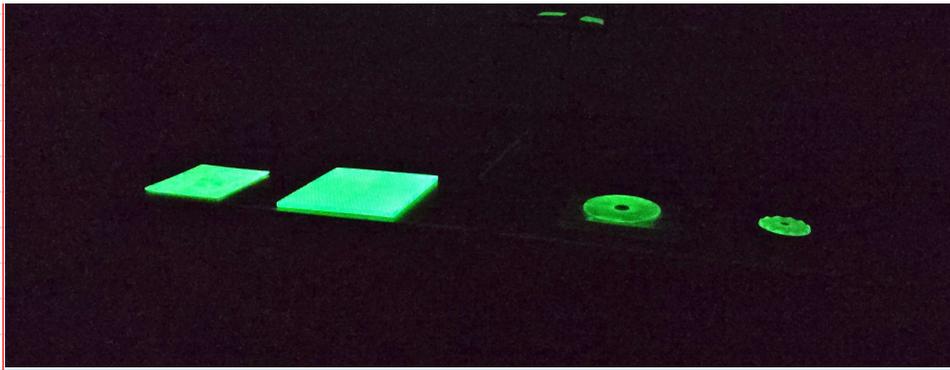


Mostly cloudy and overcast day. No direct sunlight on the units.

Picture below shows the method of measuring light output from the tested units. The light meter is about 1" above the light source. Distance is enforced with the foldable ruler (in the dark, this is an easy way to ensure consistency).

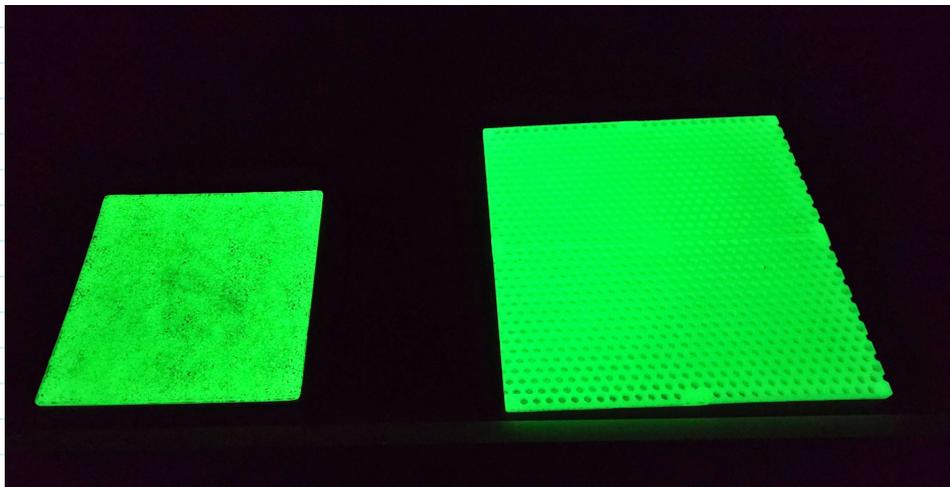
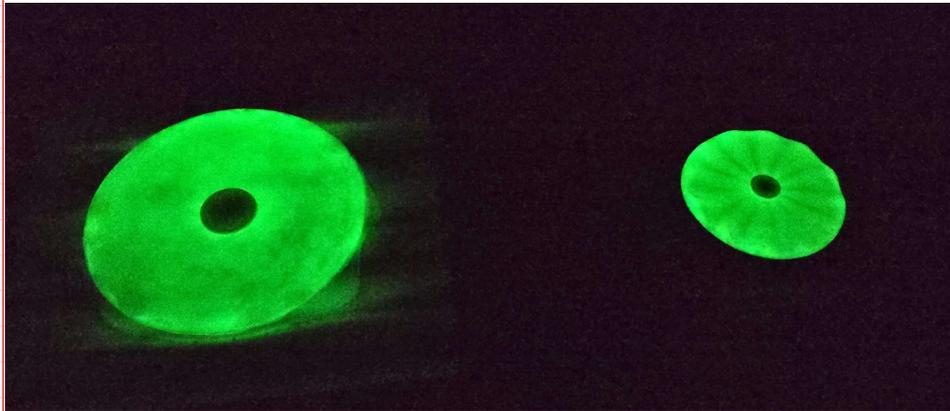


5:15pm - a little snow fell on the units. Brought them in and brushed off



Picture makes the light tunnel units look brighter than they are.

1. Phluo - 2.7 Lux
2. HoneyHoneycomb - 2.8 Lux
3. Large light tunnel - 0.3- 4 Lux
4. Small light tunnel - 0.4 Lux



Light was coming from each unit when I put cardboard on top of each so I put each in a cardboard box.



8:35pm

1. Phluo - 0.1 Lux
2. Honeycomb - 0.2 Lux
3. Small light tunnel - 0.0 to 0.1 Lux
4. Large light tunnel - 0.0 to 0.2 Lux

- Large Light Tunnel provides adequate light to just barely see floor when on 7' ceiling
- Small Light Tunnel did not give enough light to be able to see floor when on 7' ceiling
- Phluo gave more light than Large light tunnel but only a little more
- Honeycomb gave the most light from 7' ceiling - even at 25x25cm.

12:25 am

1. Phluo - 0.0 to 0.1 Lux
2. Honeycomb - 0.0 to 0.1 Lux
3. Small light tunnel - 0.0 to 0.1 Lux
4. Large light tunnel - 0.0 to 0.1 Lux

- Large light tunnel, phluo and Honeycomb all allowed barely seeing the floor from 7' ceiling.
- Small light tunnel was not bright enough

5:30am

1. Phluo - 0.0 to 0.1 Lux, more 0.0
2. Honeycomb - 0.0 to 0.1 Lux, more 0.0
3. Small light tunnel - 0.0 to 0.1 Lux, more 0.0
4. Large light tunnel - 0.0 to 0.1 Lux, more 0.0

- Large light tunnel, phluo and Honeycomb all allowed barely seeing the floor from 7' ceiling.
- Small light tunnel was not bright enough
- To my naked eye, light output seems the same as 12:25am measurement

5:30am photo without 'night mode' on phone.



5:30am photos with 'night mode' turned on. This is brighter than the units looked to my naked eye, but much closer to reality than the photo with 'night mode' turned off.



# Phosphorescent Test #7

Tuesday, January 21, 2025 10:24 AM

10:25am - Placed two units outside with south and west exposure:

- Large Night Skylight
- Small Night Skylight top but with Phluo on back instead of the original round phosphorescent piece.

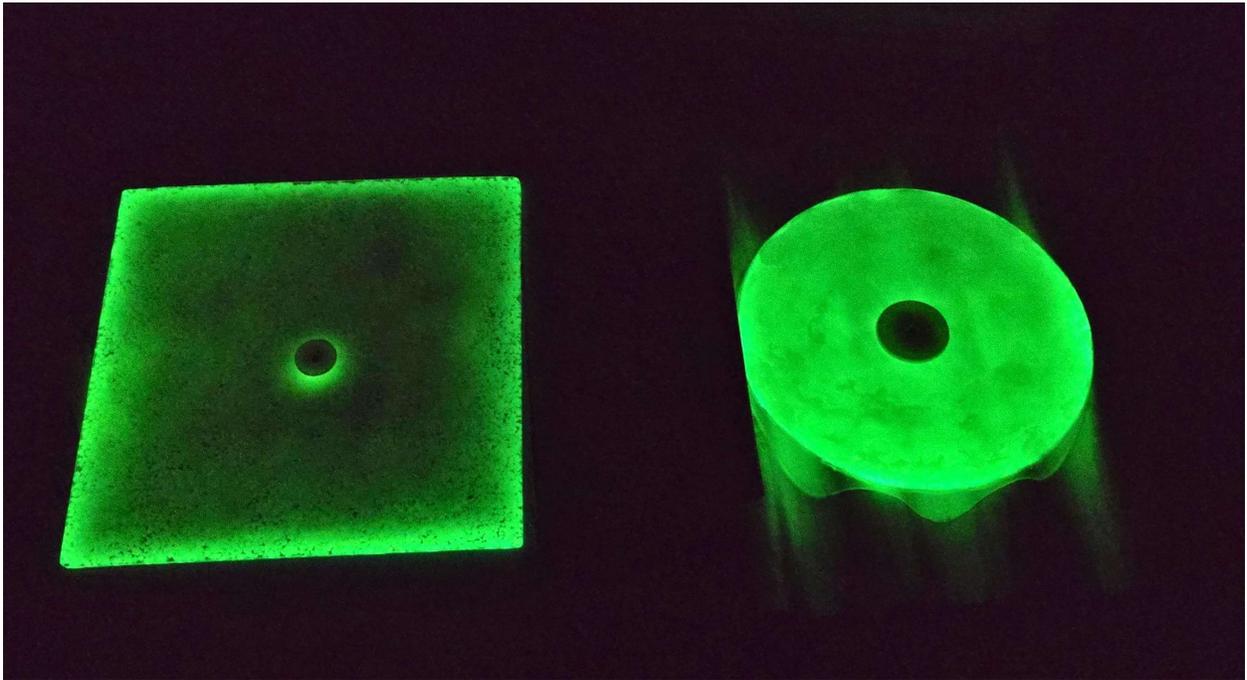
13° F



I folded the two top flaps down so they were flat to the ground after this picture was taken.

Bright sun in am. Cloudy in pm.

5pm - Night mode for phone camera.

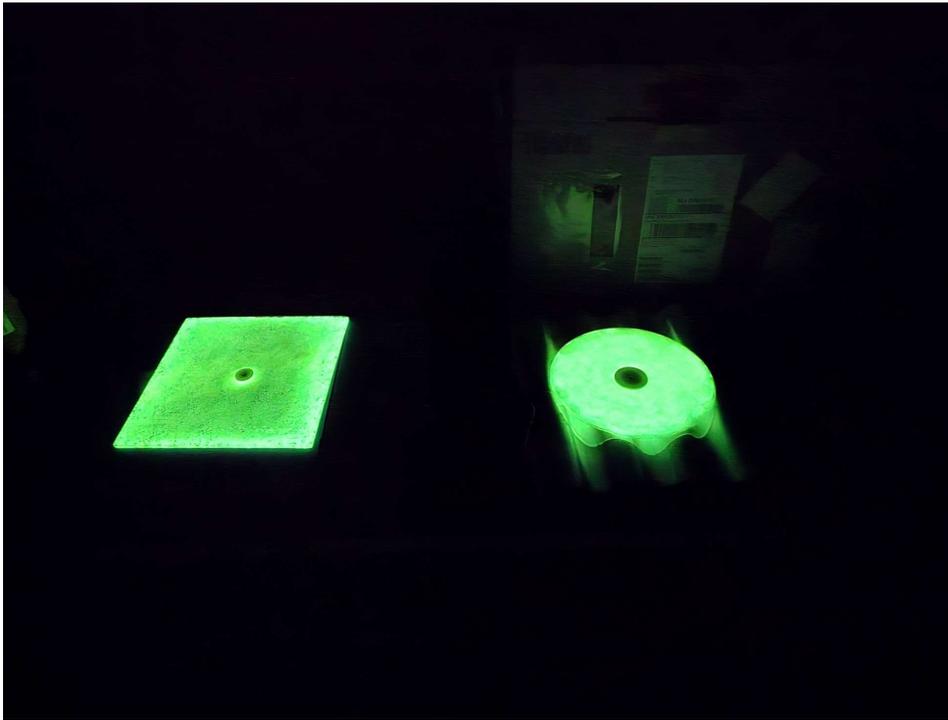


- Night skylight - 0.6 Lux
- Phluo - 0.1 to 0.2 Lux in center. Edges seem to have been charged on the ground somehow.

9pm - Regular mode for camera

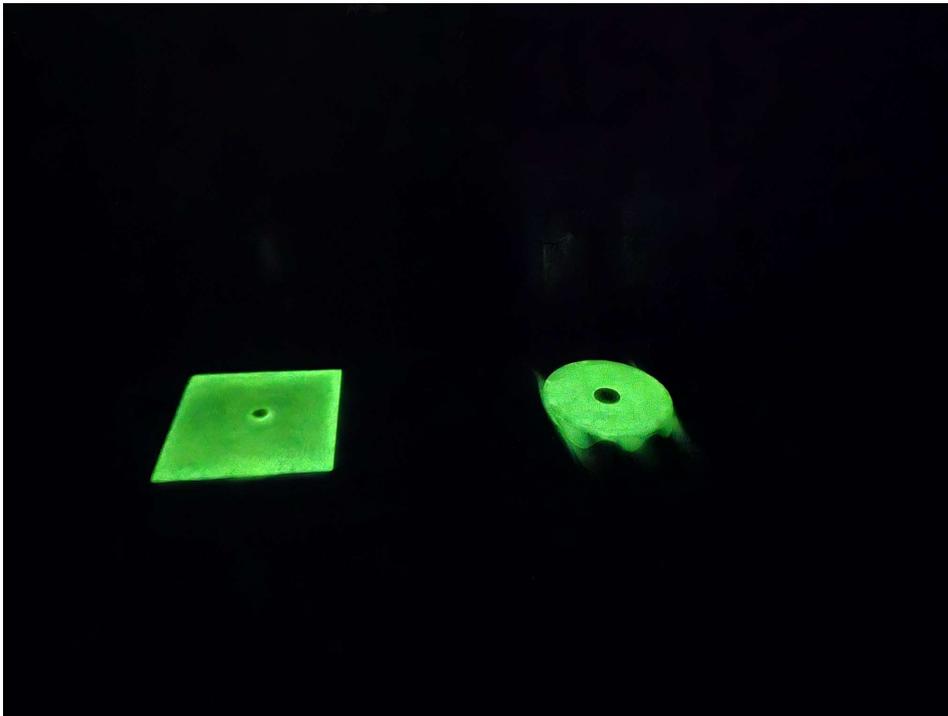


Night mode with phone camera



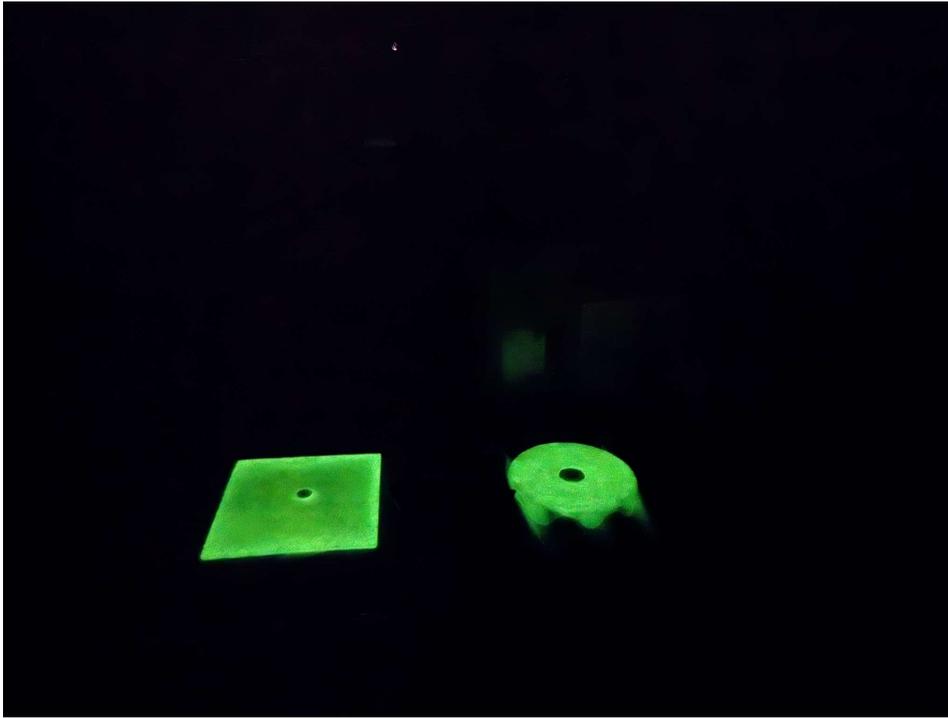
- Phluo - 0.0 Lux
- Night Skylight - 0.0 to 0.1 Lux. Mostly 0.0.

4:20am - Night mode with phone camera



- Phluo - 0.0 to 0.1 Lux. Mostly 0.0
- Night Skylight - 0.0 to 0.1 Lux. Mostly 0.0.

7:30am - Night mode with camera



- Phluo - 0.0 to 0.1 Lux. Mostly 0.0
- Night Skylight - 0.0 to 0.1 Lux. Mostly 0.0.

With either of the 2 light sources, placing the light source on the 7' ceiling barely allows one to see the floor even 14 hours after the light source was brought inside and placed in total darkness. Charging time was 6.5 hours.

# Phosphorescent Test #8

Wednesday, January 22, 2025 2:15 PM

Prepped a box to completely block out any ambient light from the phosphorescent materials. See pictures below.

Large Night Skylight and IBM Thinkpad box that has a hole in the middle of the shipping label



Picture of box with the Night Skylight in it:



Used rolled newspaper to keep the Night Skylight in place in the box



Night Skylight light tunnel aligned with the hole in the Thinkpad box



2:15pm - Put totally enclosed large Night Skylight outside in direct sun.





5:15pm - Retrieved box and brought to totally dark basement

17° F when unit brought inside. Only 3 hours of charging.

Photo without Night mode.

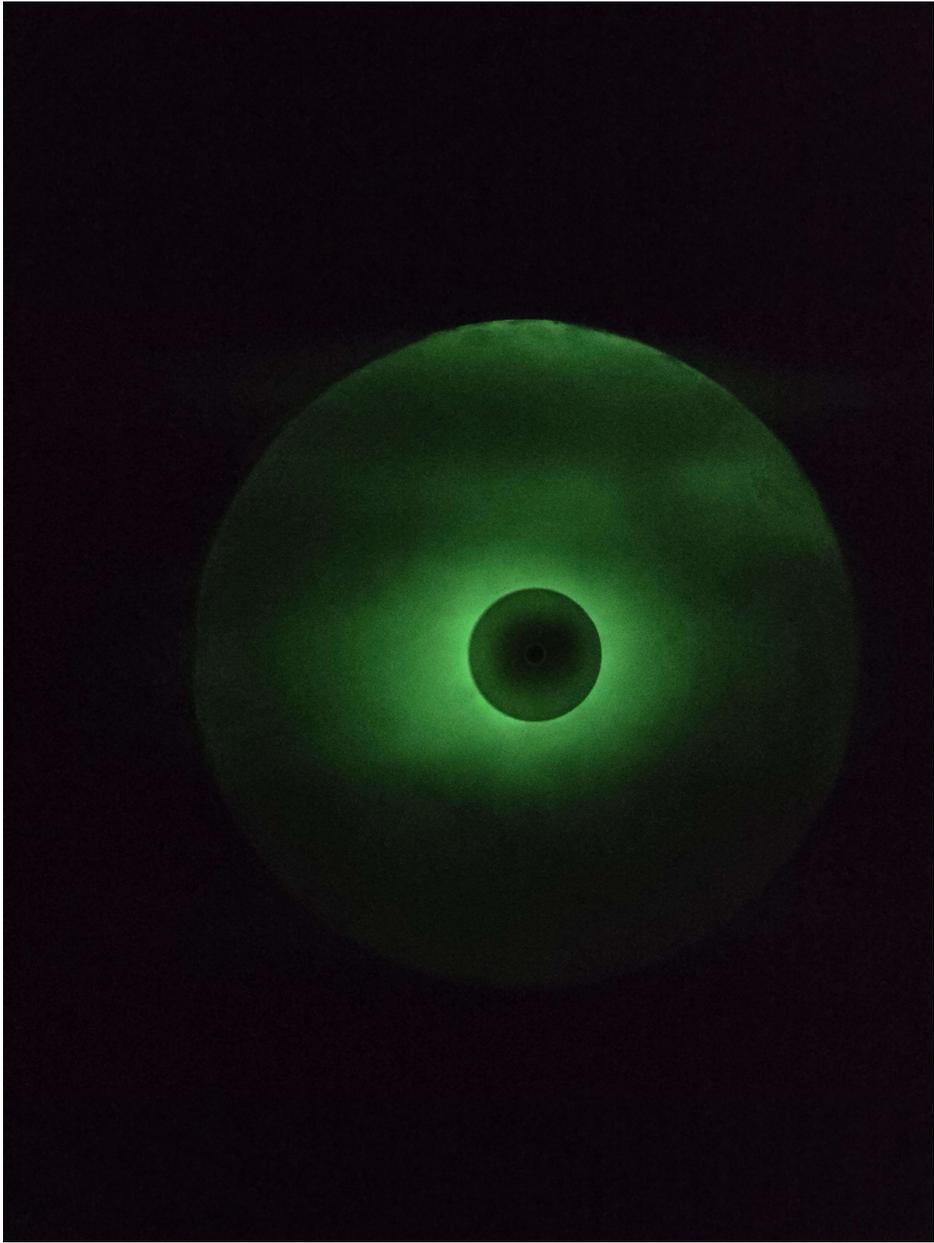
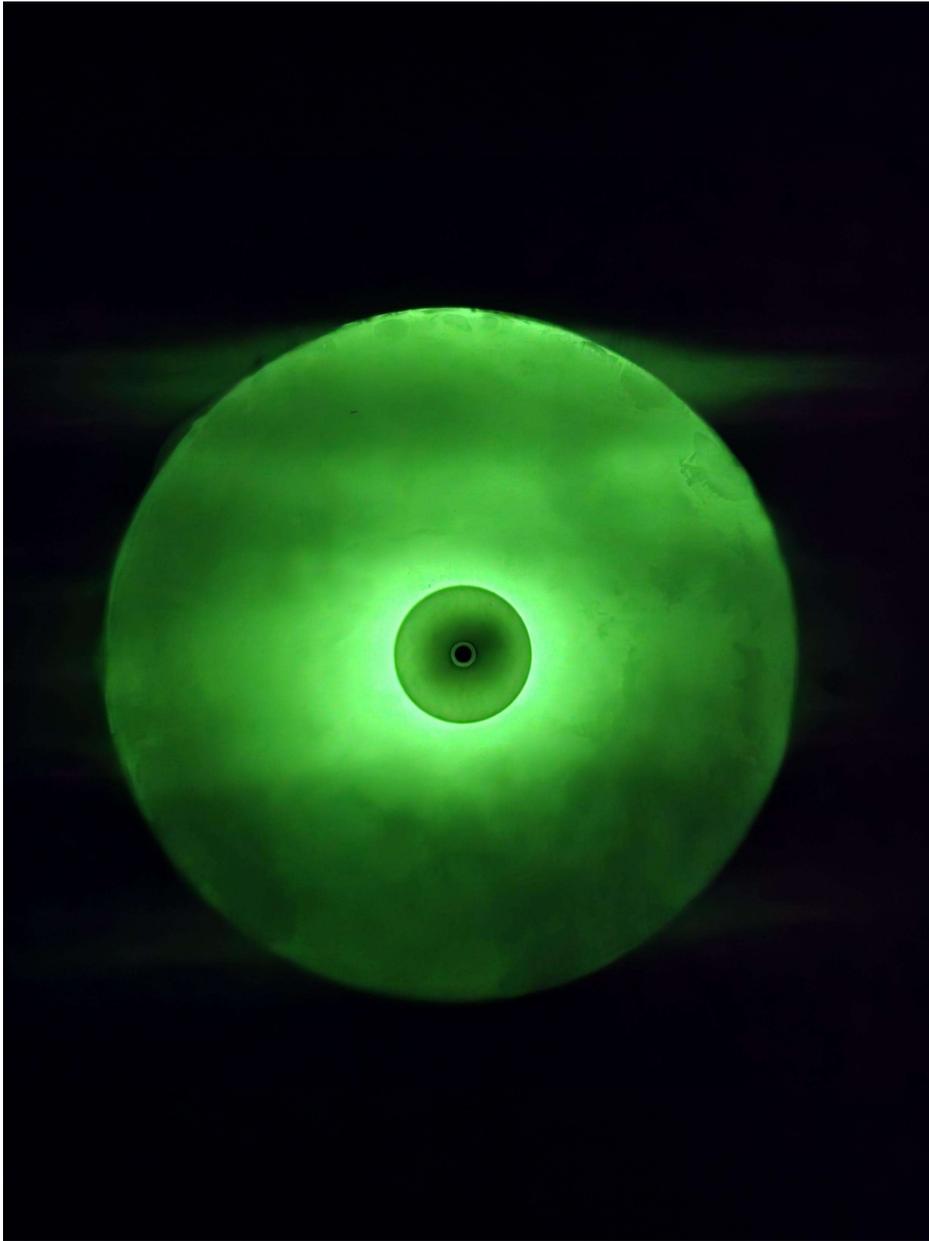


Photo in Night mode



- Large Night Skylight - 0.2 Lux in center. 0.1 halfway to the perimeter. 0.0 on outside perimeter

8:30pm

- Large Night Skylight - 0.0 to 0.1 Lux. Mostly 0.0. Too faint to see floor when on 7' ceiling.

# Phosphorescent Test #9

Thursday, January 23, 2025 8:44 AM

Changes since yesterday:

- Made hole bigger so sun can get in at an angle
- Put out in sun much earlier



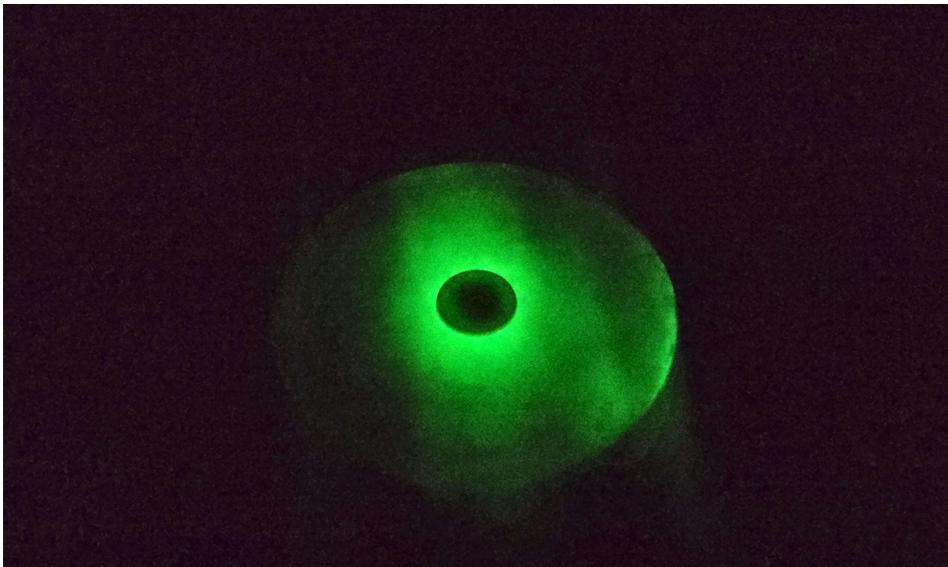
Put outside at 8:48am.



Temperature is 12° F. Slightly overcast.

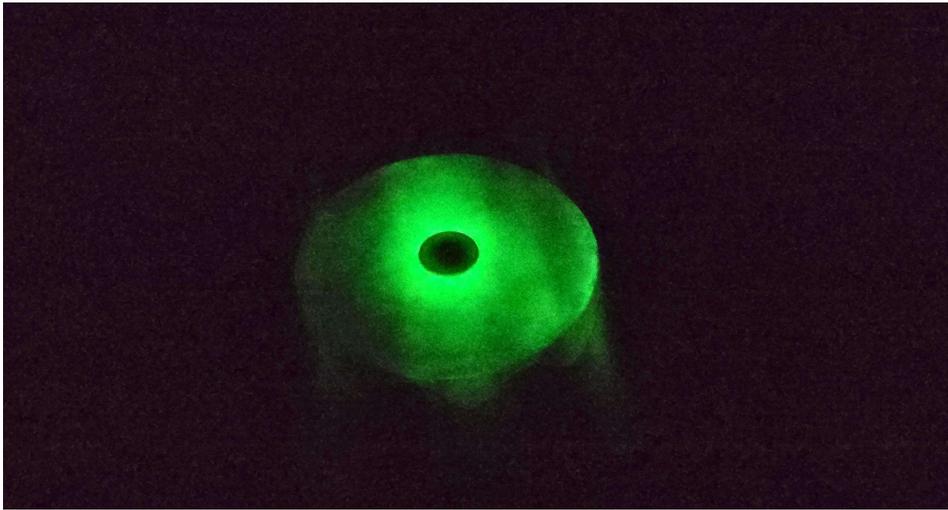
5:00pm - 24°F. Brought unit inside and unboxed.

Picture with no night mode. Basement is 68°F.



- Large Night Skylight - 0.2 Lux in center. 0.0 Lux on outside.
- At 5:07pm, the brightness has increased to 0.3 Lux in center of circle.
- At 5:11pm, the brightness has increased to 0.4 Lux in center of circle.

5:11 photo with no night mode

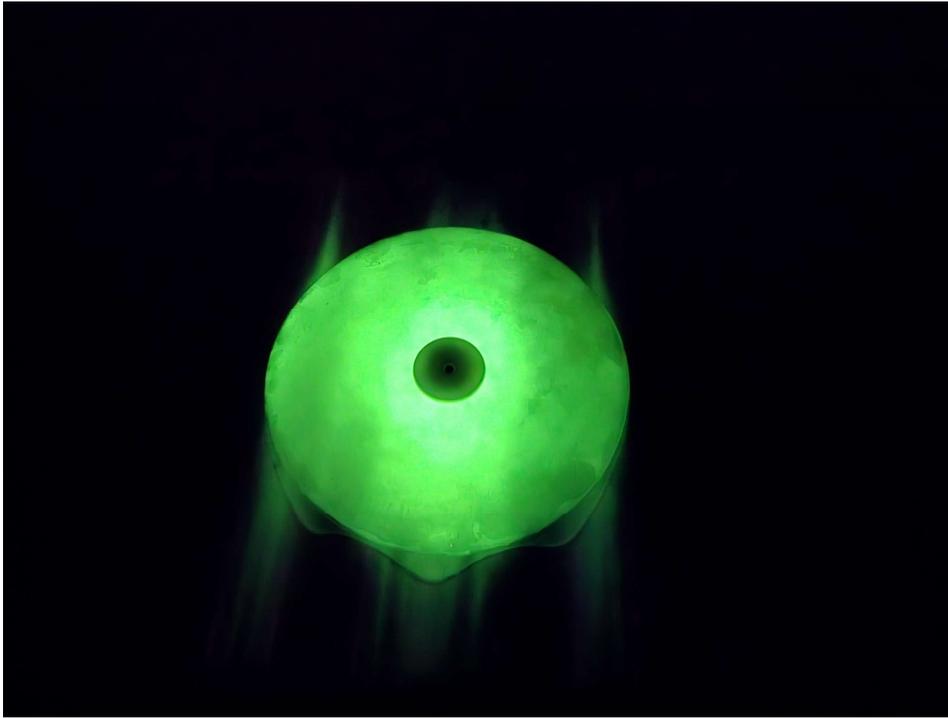


8:37pm - No Night mode.

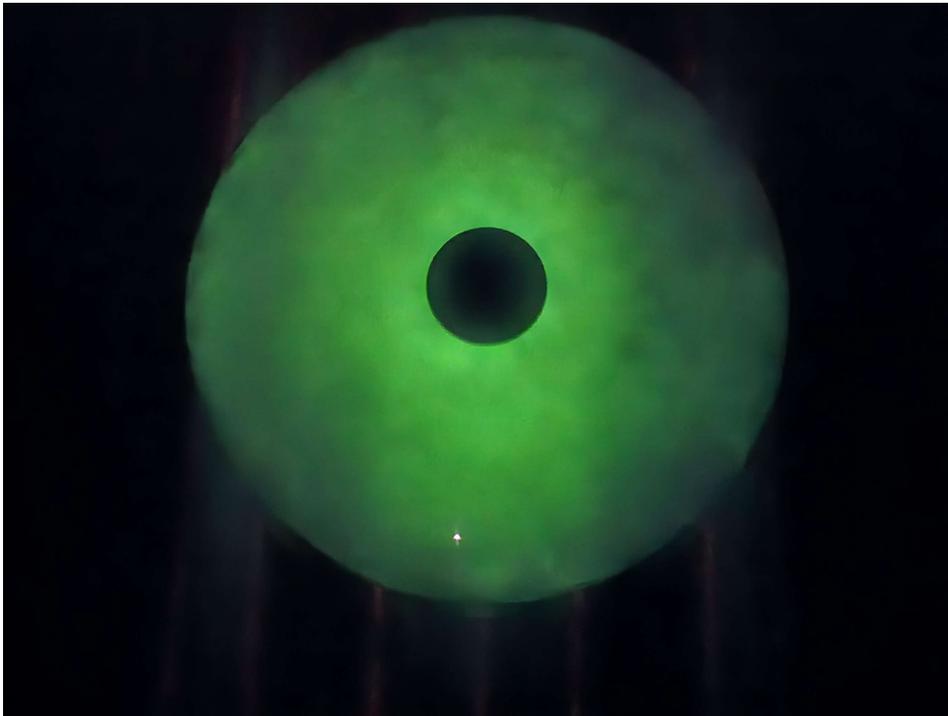


- Large Night Skylight - 0.0 to 0.1 Lux everywhere. Mostly 0.0.
- Can't see the floor when unit on 7' ceiling. Can barely see the top of the ping-pong table (which is 76 cm off floor)

8 :44pm Night mode on



6:30am - Picture with Night mode on.



- Appears close to the same brightness as 8:44pm last night.
- Large Night Skylight - 0.0 to 0.1 Lux everywhere. Mostly 0.0.
- Can't see the floor when unit on 7' ceiling. Can barely see the top of the ping-pong table (which is 76 cm off floor)

# Phosphorescent Test #10

Friday, January 24, 2025 9:34 AM

Changes from yesterday:

1. Large unit is not fully discharged
2. Small unit (with Phluo panel on back) has corners folded on 3 sides to prevent ambient light entering. Only 1 side open to see if ambient light comes in there

Top view



Bottom view

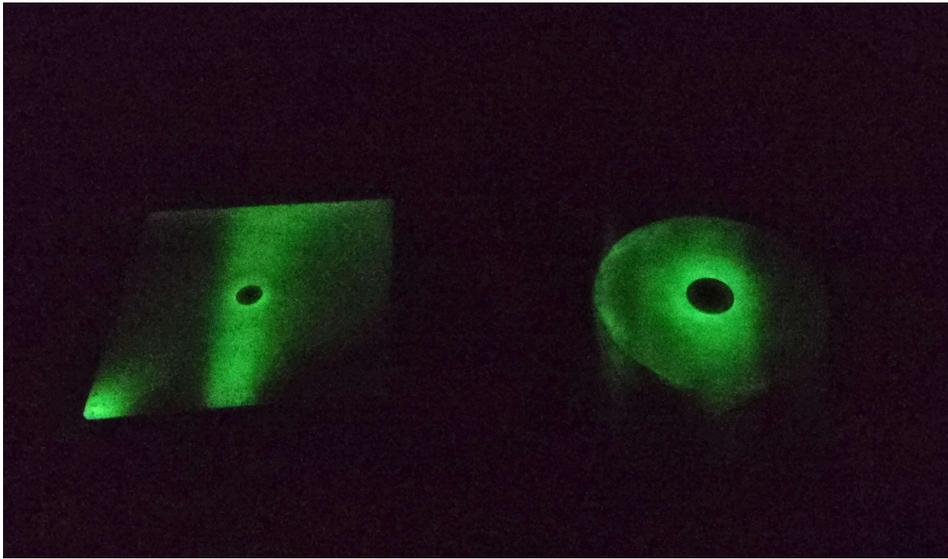


Placed outside at 9:40am. Temp is 24°F. Open side of small unit is flush with box to minimize ambient light.



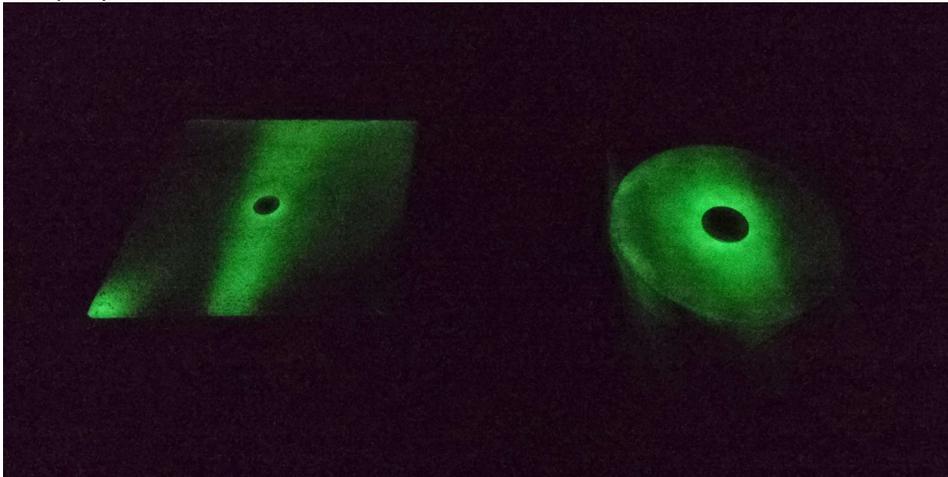
Stopped charging at ~ 5:00pm when sun was down, but left outside because I was doing something else. Brought inside at around 5:30pm and placed in basement in darkness.

6:00pm - 28°F  
no night mode - Units warmed up some inside (~20 minutes?) before this picture.



- Large Night Skylight - 0.3 to 0.2 Lux in center. Half of each. Occasionally 0.4 Lux.
- Phluo under cardboard cover - 0.2 Lux on center-line

6:16pm picture



9:30pm - no night mode



- Large Night Skylight - 0.0 Lux. If move sensor rapidly, can get 0.1 Lux
- Phluo under cardboard cover - 0.0 Lux

# Phosphorescent Test #11

Saturday, January 25, 2025 3:52 PM

Put large Night Skylight in totally enclosed box. Goal is to determine if the box allows any light energy in to charge the unit

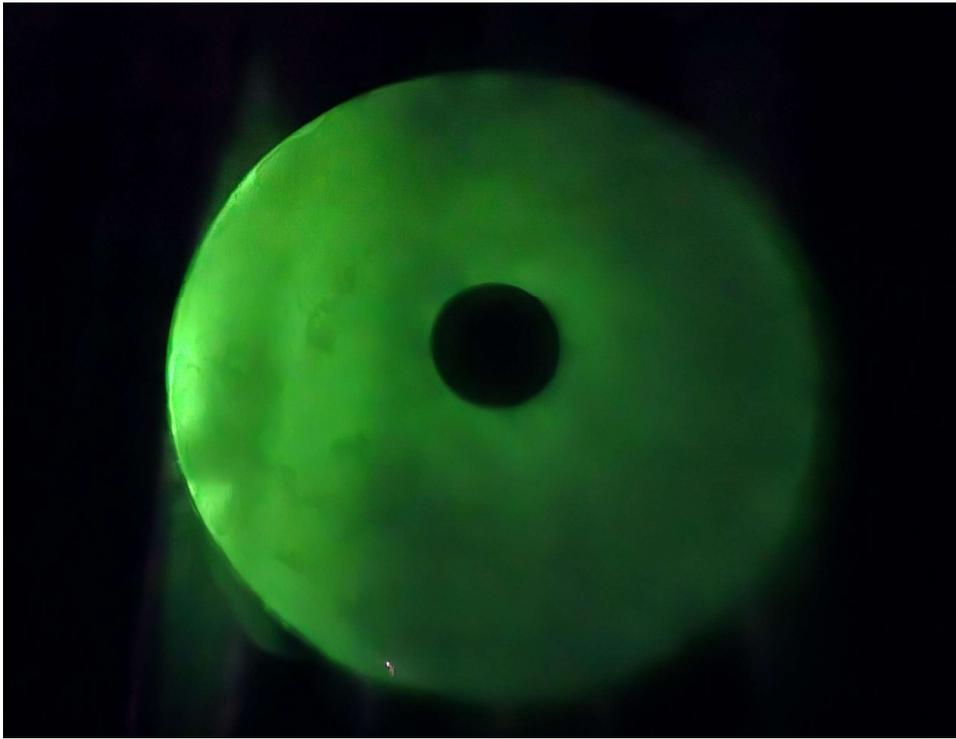
8:30am - Placed box outside.



5:30pm

Brought box into basement and opened it in dark. Small amount of glow to the phosphorescent circle but nothing measurable

Picture below is with Night mode. Far left edge has some light output. Can't identify why.



# Phosphorescent Test #12

Sunday, January 26, 2025 11:31 AM

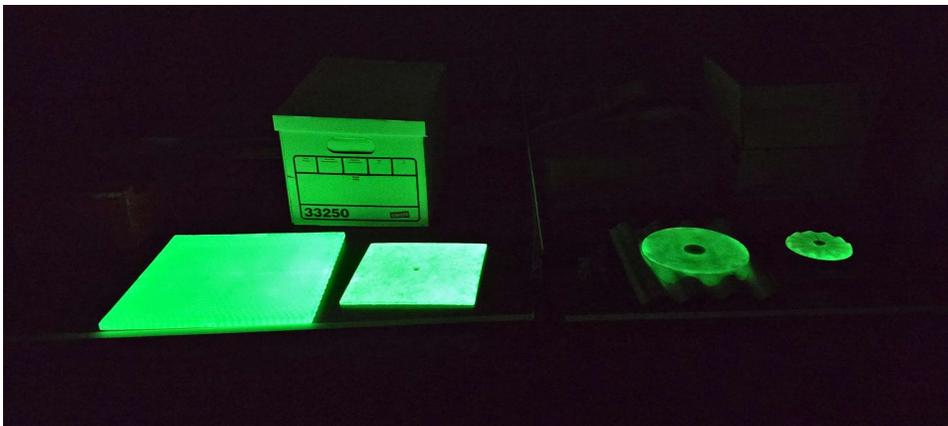
## Goals

1. Put the Night Skylights back together and isolated the Phluo again.

11:30 am - 34°F - overcast



5:25pm - 40°F - no night mode



- Honeycomb - 3.5 Lux
- Phluo - 3.3 Lux
- Large Night Skylight - 0.4 Lux

- Small Night Skylight - 0.5 Lux

Storage of each unit as Night progresses so no unit affects any other one. Room kept in the dark (except for taking this photo).



8:20 pm

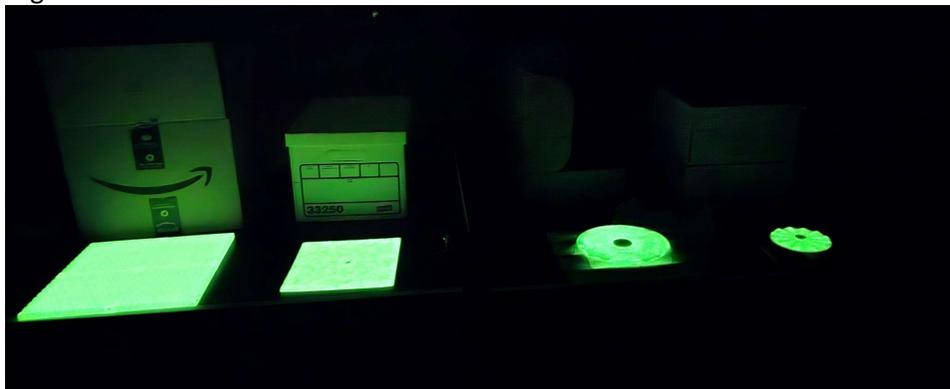
- Honeycomb - 0.2 to 0.3 Lux. Mostly 0.2.
- Phluo - 0.1 to 0.2. Mostly 0.1 Lux.
- Large Night Skylight - 0.0 to 0.1. Mostly 0.0 Lux.
- Small Night Skylight - 0.0 Lux

9:50 pm

Night mode off



Night mode on



- Small Night Skylight - 0.0 Lux. Can't really see any shapes on ping pong table
- Large Night Skylight - 0.0 Lux. Can see shapes on ping-pong table but not floor.
- Phluo - 0.1 to 0.0. Mostly 0.0 Lux.
- Honeycomb - 0.2 to 0.0 Lux. Mostly 0.1.

4:40 am

- Small Night Skylight - 0.0 Lux. Can't really see any shapes on ping pong table. Can barely see white line on ping pong table.
- Large Night Skylight - 0.0 Lux. Can barely see shapes on ping-pong table but not floor.
- Phluo - Mostly 0.0 Lux.
- Honeycomb - Mostly 0.0 Lux

Can clearly but dimly see the floor from 7' ceiling with both Honeycomb and Phluo.

8:00am

Night mode photo



No night mode photo



Can't see anything with the emitted light.

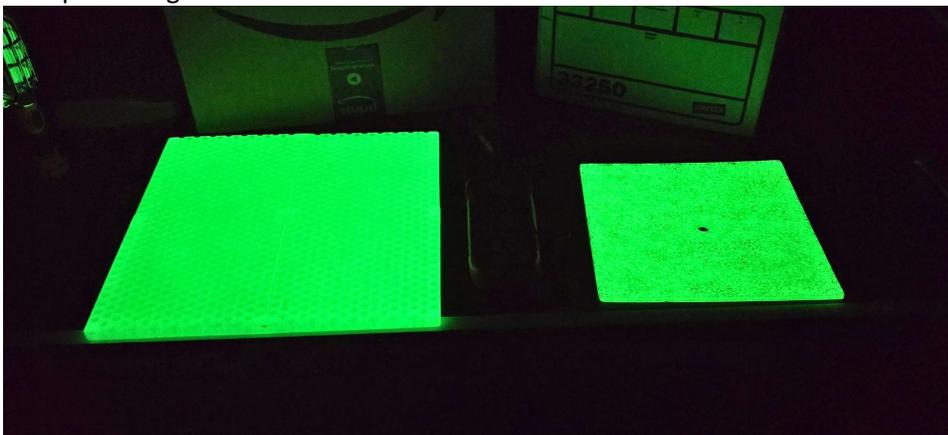
# Phosphorescent Test #13

Monday, January 27, 2025 12:42 PM

Placed at 12:30pm. Temp is about 35 F.



5:30 pm no night mode

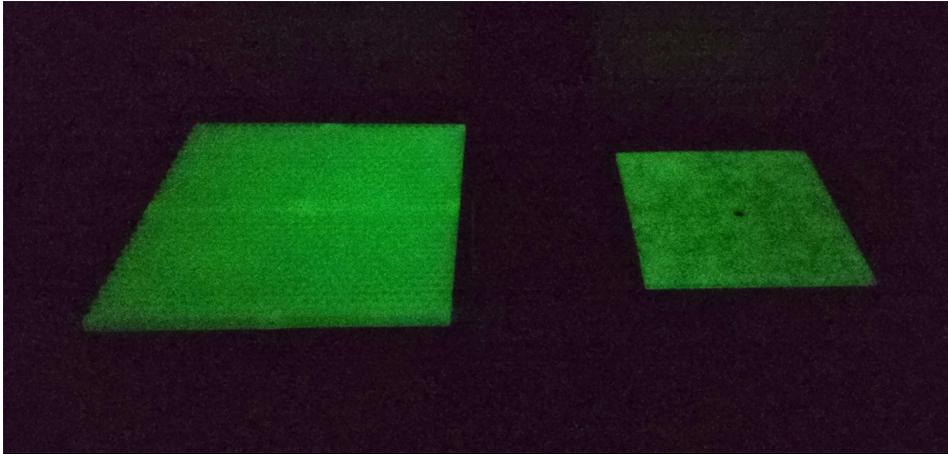


- Honeycomb - 1.6 Lux
- Phluo - 1.6 Lux

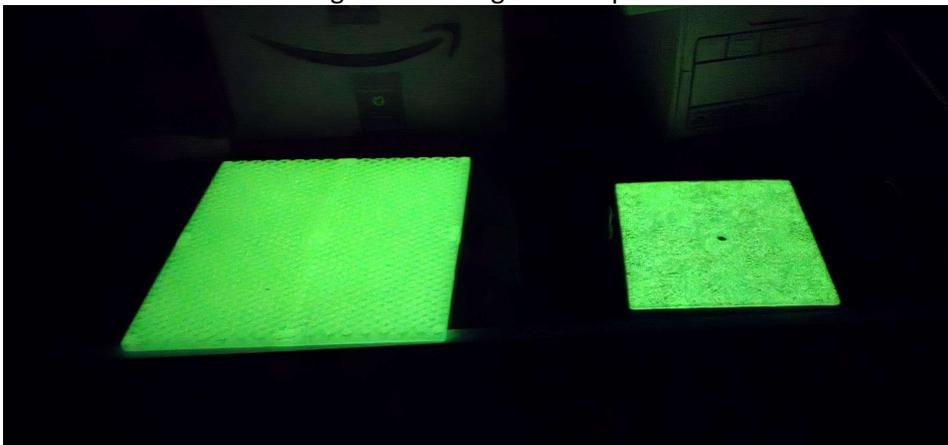
8:40pm

- Honeycomb - 0.2 Lux
- Phluo - 0.1 Lux

Picture with no night mode



7:30am too dark with no night mode. Night mode picture below



- Honeycomb - 0.0 Lux. Can barely see ping pong table white lines. Can't see floor.
- Phluo - 0.0 Lux. Can barely see ping pong table white lines. Can't see floor.

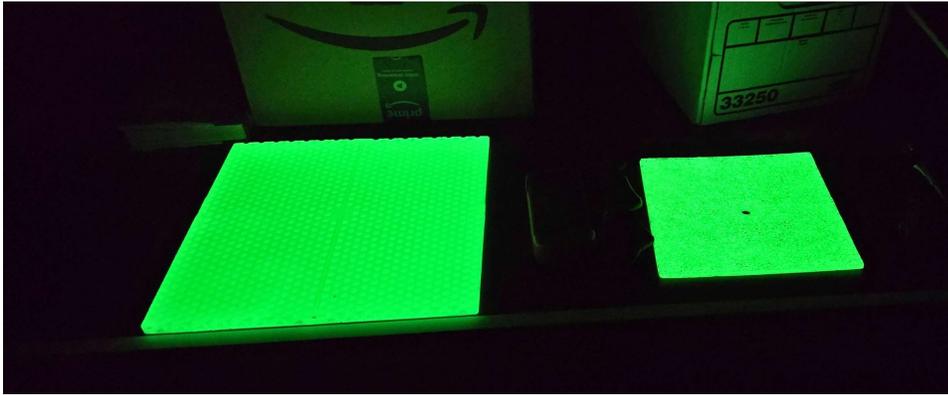
# Phosphorescent Test #14

Tuesday, January 28, 2025 7:36 AM

7:37am - 37°F. Location in total shade.



5:15pm. 35°F - no night mode



- Honeycomb - 2.6 Lux
- Phluo - 3.1 Lux

Test setup including boxes to hold each unit, guide to hold light sensor and Lux Meter.



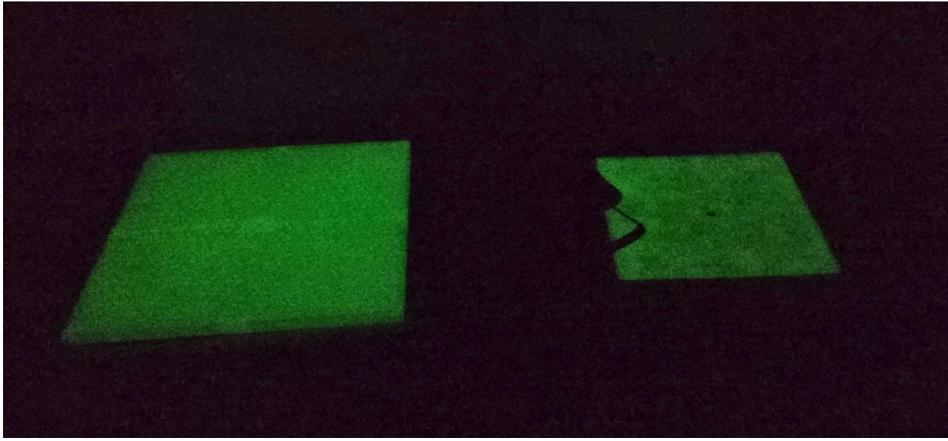
9:00pm

- Honeycomb - 0.1 Lux
- Phluo - 0.1 Lux

With 25x25cm Phluo on 7' ceiling, i could barely make out my dark slippers on light beige rug.

No night mode





5:15 am

No night mode



- Honeycomb - 0.0 Lux with occasional 0.1.
- Phlup - 0.0 Lux with occasional 0.1.

With 25x25cm Phlup on 7' ceiling, i could barely make out my dark slippers on light beige rug. Same experience with 36x36cm Honeycomb.

# Phosphorescent Testing 2-1-25

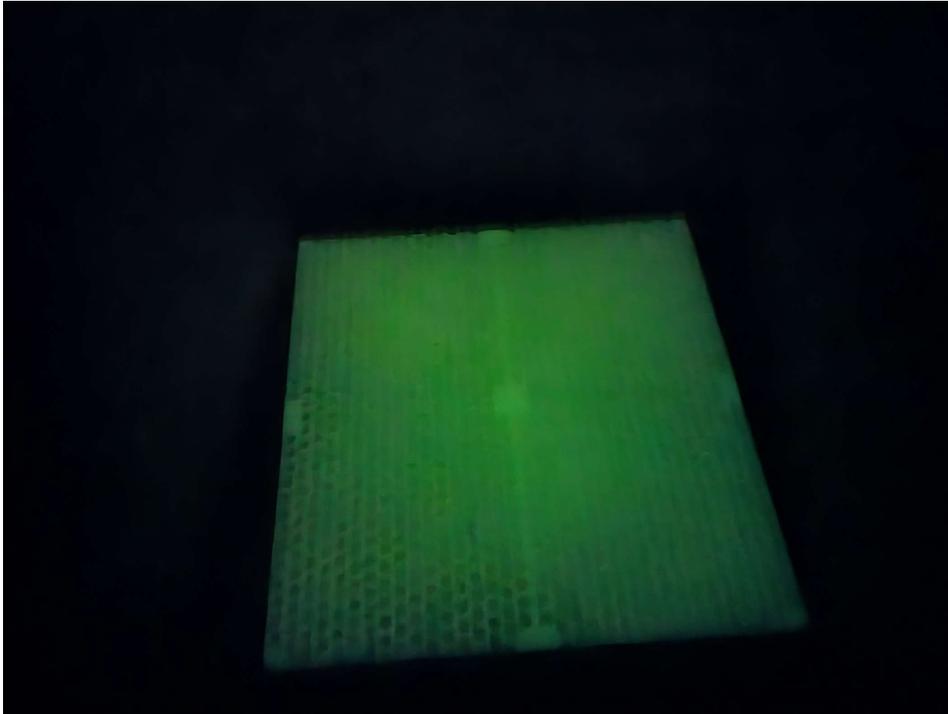
Saturday, February 1, 2025 5:39 PM

5:40pm

Units were in individual boxes since last recorded measurement on 1/30 at 5:30am. That was 60 hours before this measurement. There should have been no light exposure for the

I opened the Honeycomb box and Phluo box and both panels emit enough light for me to see the sides of the box and my hand at the top of the box - after my eyes are night adjusted. The emitted light is being reflected off of the walls of the box and this provides more light inside the box.

Honeycomb with Night Mode On (while inside box)



Phluo with Night Mode on (while inside box)



Night mode on photos of both

