

# Astro test frame shot list — Hyper Browser RAW inspector

Shoot everything in **RAW** (uncompressed if the body offers it). Turn **off** any in-camera lens/shading compensation and long-exposure noise reduction. Manual lenses report nothing in EXIF, so **put the lens and aperture in the filename**, e.g.

`wide_tak55_f1.8_a7r3.ARW` or `wide_23mm_f2_a6000.ARW`.

One frame each is enough. Three of the flats is better if it's no trouble — they average.

Bodies: **A7R** = a7R IIIa (full frame), **A6000** = a6000 (APS-C).

A print-friendly copy for use in the field: [astro-shot-list.pdf](https://astroshotlist.com/astro-shot-list.pdf).

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## Priority 1 — the core vignetting pair (most valuable)

| # | Body | Lens         | Aperture        | Shot                                                  |
|---|------|--------------|-----------------|-------------------------------------------------------|
| 1 | A7R  | Takumar 55mm | f/1.8 wide open | Wide field night sky, plain sky, <b>no foreground</b> |
| 2 | A7R  | Takumar 55mm | f/1.8 wide open | <b>Flat</b> (see below), same lens and aperture       |

These two together let me check a fit made from frame 1 against the truth in frame 2. If they match within a few percent, the algorithm is validated and no flat is ever needed again.

## Priority 2 — severe falloff (the case the feature is really for)

| # | Body  | Lens            | Aperture      | Shot                 |
|---|-------|-----------------|---------------|----------------------|
| 3 | A6000 | 23mm APS-C lens | wide open     | Wide field night sky |
| 4 | A6000 | 23mm APS-C lens | same aperture | <b>Flat</b>          |

APS-C-native lenses have barely enough image circle for the sensor, so these should vignette hard. This pair is worth more to the vignetting work than anything else on the list.

## Priority 3 — sensor comparison (same glass, two sensors)

| # | Body  | Lens         | Aperture | Shot                 |
|---|-------|--------------|----------|----------------------|
| 5 | A6000 | Takumar 55mm | f/1.8    | Wide field night sky |
| 6 | A6000 | Takumar 55mm | f/1.8    | <b>Flat</b>          |

Same 55mm as #1 and #2, so the only variable is the sensor: photosite size, black level, green split, read noise. The APS-C body only sees the centre of a 35mm image circle, so expect mild falloff — that is the point. It is the do-no-harm case, where a fit could invent a correction that isn't there.

## Priority 4 — the two failure cases

| # | Body  | Lens          | Aperture           | Shot                                                            |
|---|-------|---------------|--------------------|-----------------------------------------------------------------|
| 7 | A7R   | Takumar 55mm  | f/1.8              | Landscape astro: sky <b>with a treeline or horizon</b> in frame |
| 8 | A6000 | Takumar 135mm | f/3.5 or wide open | Lunar, moon centred                                             |

## 7 breaks the assumption that every annulus sees the same sky, and tells me how hard to make the

fit resist it. #8 checks the automatic guard on the other body — the a7R lunar frame already supplied ( `_DSC2596` ) covers the full-frame side, so this one is optional.

## Optional extra, if it's easy

| # | Body | Lens         | Aperture     | Shot                                       |
|---|------|--------------|--------------|--------------------------------------------|
| 9 | A7R  | Takumar 55mm | <b>f/5.6</b> | Wide field night sky, plus a flat at f/5.6 |

Same lens and body at a second aperture gives a second falloff magnitude to check the fit tracks the optics rather than fitting noise. Nice to have, not needed.

## How to shoot a flat

The flat measures how much of an even light actually reaches each photosite, so the only thing that matters is that the light is genuinely even.

1. **Same lens, same focal length, same aperture** as the light frame it pairs with. A flat is only valid for the aperture it was shot at.
2. **Target**, best first: - Twilight sky, 20–30 minutes after sunset, pointed straight up, away from the sunset glow. - A white T-shirt or two stretched over the lens hood, pointed at that sky. - An evenly lit white wall, camera square to it, shot slightly defocused.

### 3. **Exposure:**

aim for the histogram centred around the middle, roughly 50–60%. Do **not** clip. Underexposed is far better than clipped.

4. **ISO:** as low as the body goes (100), since there's no reason for noise here.

5. Keep the camera in the **same orientation** as the light frames, and no filters on.

## What I do with them

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Frames 1–6 validate the synthetic flat-field fit against real falloff, across two sensors and two image-circle situations. Frames 7–8 set the thresholds for when the correction should refuse to run. Nothing camera-specific ships: the feature fits each image from its own pixels, and these frames exist only to prove the fit is right.

Measurements from the frames already supplied are on [Astro test frames](#), and the pipeline these validate is on [Astro render mode design notes](#).

## Lenses deliberately left off the list

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- **500mm Soviet mirror lens** — mirror designs have their own unusual falloff and a fixed aperture, so it would confound the fit rather than test it.
- **a7R IIIa in APS-C crop mode** — keeps only the sweet spot of the image circle, which tells us nothing the a6000 does not already say.
- **A second lunar frame on the a7R IIIa** — `_DSC2596` already covers the full-frame guard case.