TripleSpec Supernova Observation Checklist

1. Target Preparation

• Confirm accurate RA/Dec (J2000) of the SN. • Verify NIR brightness (K ~10–15 mag ideal). • Identify nearby bright guide star. • Know SN's position relative to host galaxy features.

2. Timing and Night Setup

• Start ~30 min after sunset (Sun ≈ -6°). Sky is already dark enough for acquisition. • Continue until ~30 min before sunrise. • Use 1.1″ slit if seeing < 1.1″.

3. Instrument Configuration

• Slit: 1.1″ (optimal balance of resolution & throughput). • Fowler sampling: N=8 (user must set manually). • Integration time ≤ 5 min (limit airglow variation). • Nod sequence: ABBA. • Guider binning: 2×2. • Background subtraction: use for faint sources.

4. Guider & Source Acquisition

• Bright SN: find in Ks-band slit viewer, center on A position (~1/3 from left), click Guide. • Faint SN: increase guider exposure time and use background subtraction. • Refresh background frame when integration time or target changes.

5. Spectral Acquisition

• Confirm source centered at A position. • Run ABBA nod or manual 20″ offsets. • Each A/B pair: subtract for airglow & offset removal. • Monitor counts (< 52,000 DN to avoid saturation).

6. Calibrations

• Darks: same Fowler N & integration as science. • Flats: dome or internal lamp. • Telluric standard: A0V near same airmass, K≈8–10 mag. • Avoid bright standards (K<7) to prevent persistence.

7. Focusing

• Use nearby K≈10 mag star. • Adjust focus until guider image is round (no astigmatism). • Elongation parallel to slit → make focus more negative.

8. Operational Notes

• Slit defects: move a few arcsec if target falls on a dark spot. • Electronic ghosts & offsets: cancel in A–B subtraction. • Persistence: avoid bright calibrators before faint targets. • Saturation: limit to ≤ 52,000 DN; minor nonlinearity >20,000 DN.

9. Data & Logging

• Record exposure parameters (A/B, time, slit, Fowler N). • Use tcam_match script to align guider & science frames. • Check FITS headers for EXPTIME, INTDELAY, FOWLER keywords.