KOSMOS Punchlist of known issues and items to address
Updated: October 15, 2022

Hardware issues:

1. **flexture** - *Kal and Bill investigated / Could not repeat*
   - workaround: tell observers to take cals at each position (oh boy, all the users make excuses not to...)
   - test: figure out which components are sagging (how?)
   - status: initial investigation found no loose or moving parts (wheels)
   - test: sag with different grism+slit combos
   - test: sag repeatability
   - fix: stiffen back end of instrument on truss?
   - fix: stiffen specific components?
2. **bias/overscan issues -** *No resources to fix in Torrent controller (Sarah Tuttle will investigate)*
   - test: what causes biases level to wander? Ambient temp but also other?
   - test: CTI problem only when saturated? Or also mid-high count levels?
   - test: overscan begins at center of chip?
   - fix: change voltages? ... and then repeat how much of the commissioning process?
      - *Bill K researched the e2v recommended voltages and compared with Kal's measured CCD voltages the lab.*
      - *gathering enough info to be able to ask Peter at CTIO a set of questions*
3. **internal lamp illumination offset**
   - test: confirm offset is repeatable? It seems to be. – *Bill and Kal could not duplicate*
   - partial fix: change illumination angle? – *No change made*
4. **CCD temp regulation**
   - deadband? PID loop? – *Bill investigated. Could not identify a PID loop. PWM heater control has inherent design flaw. No resources to fix in Torrent controller*
   - Do we like 160 K?
5. **Need firmer numbers of read noise, gain and linearity.** – *Obs-specs: Was this done? (Sarah Tuttle will make measurements)*
   - make measurements on telescope during the cloudy night or possibly daytime after have a reliable shutter.
   - proper photon transfer curves with truss lamps for readnoise, gain and linearity.
   - characterize dark current at different ccd temperatures (coincide with 6?)
6. **Slit Masks (mfg)** – *UW TEG*
   - New long slits to be delivered before end of Sept – S.Tuttle (UW)
   - MOS slit generation process is being worked on by J. Burchett (NMSU)

Software issues:
1. **TUI pulldown menus**
   - workaround: changing font size corrects inst-config and tertrot pulldowns
   - workaround limitation: changing font size does NOT fix Sec Focus stepsize, guider filters
   - workaround: for 10.14, changing font size fixes invisible buttons like Start/Pause/Stop/Abort
   - fix this issue and maybe we could have a beta version instead of alpha?
2. **Slitmasks and improved guiding** – *Bill and Amanda worked on this. Obs-specs: Has this been fixedto your satisfaction? Work around?*
   - Can't do boresight guiding on slit without them
   - do flatfields help (like dcam) or hurt (like ecam)?
   - slit positions change with rotation
   - slits change a LOT when kcamera focus moves - so don't move kcamera focus?
   - can not guide below the slit?
3. **Bias/overscan section in headers**
   - easy fix? Only four possibilities for four binning options, no subframes!
   - try for consistency with ARCTIC header cards
4. **Kosmos TUI focus script?** – *Responsible person? Obs-spec? 3.5-m Programmer?*