3.7 2019B Performance Criteria

Here we document the performance criteria for MagAO-X during the 2019 B commissioning run. It is not expected that the full performance capability of MagAO-X (see Table 1 of Section 1) will be realized.

1. Minimum Requirements For Success

1.0	Safely ship to and from LCO
1.0.1	Minimum risk to personnel during all handling operations, at Steward and at LCO
1.0.2	Minimum risk to instrument hardware during all handling operations, at Steward and at LCO
1.0.3	Minimum risk to instrument hardware during shipping
1.0.4	Efficient shipping plan, which will support continued development at SO

1.1	Instrument setup in cleanroom at LCO
1.1.1	Interfaces and needed resources identified and available
1.1.2	Personnel plan supports optical realignment and control system startup

1.2	Installation on Telescope
1.2.1	Plan for move from cleanroom to telescope is safe
1.2.2	Need resources for move are identified and available
1.2.3	Need interfaces and resources on telescope are identified and available
1.2.4	Initial alignment will establish that instrument can receive starlight from telescope
1.2.5	Full alignment pan will result in starlight from telescope passing through instrument
1.2.6	Once aligned, system will be capable of viewing images of a star in open loop

1.3	First Light Observations
1.3.1	A star can be acquired
1.3.2	Primary (high-order) AO loop can be closed
1.3.3	Science-channel focal-plane will receive corrected in-focus images of stars
1.3.4	Images can be saved with needed meta-data for analysis of system performance

1.3.5	Initial Strehl performance characterization on bright stars

2. Extended (Goal) Requirements for Commissioning Run 1

2.1	Strehl vs. Guidstar magnitude
2.2	Photometric characterization (throughputs)
2.3	Astrometric characterization (platescales)
2.4	vAPP coronagraph characterization
2.5	LOWFS demonstration
2.6	MWFS demonstration