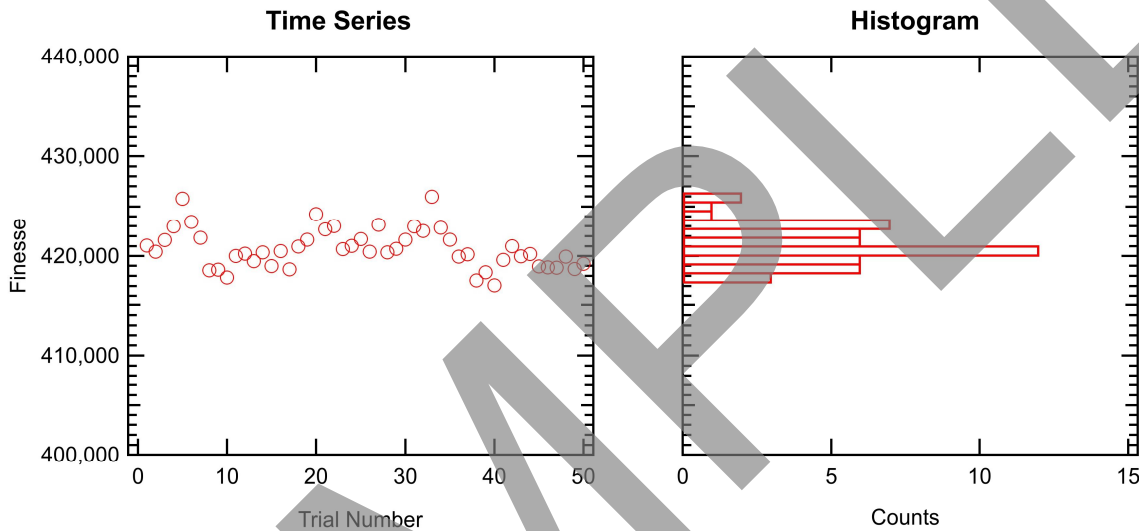


Measured Mirror Finesse at ~1394 nm	Transmission (T)	Scattering + Absorption (S+A)	Reflectivity (1-T-(S+A))
420,000	4.5 ppm	3.0 ppm	99.9992%

The cavity ring-down technique was used to measure the decay time constant of a TEM00 mode transmitted through the 1397 nm xtal stable mirror under test assembled into a linear cavity configuration with a nominally identical mirror using independent kinematic mounts at room temperature in vacuum. The median measured finesse was 420,000 at 1394 nm \pm 5 nm and was determined from the measured decay times and known cavity length of 121 mm \pm 1 mm. Assuming identical losses for each optic, we infer a total loss of 7.5 ppm per mirror, which consists of 4.5 ppm in transmission, and a best estimate of 3.0 ppm scattering + absorption losses. Details on methodology, data analysis, and raw data are available on request.



Test Date:	AUG 25, 2021	Laser Source:	Nanoplus 1397 DFB
Operator:	GWT	Test Wavelength:	1394 nm \pm 5 nm
Cavity:	Run04	Target Finesse:	300,000
Input Mirror S/N:	TCS-FS-PL-29	Measured Median Finesse:	420,000
Output Mirror S/N:	21126-05	Total Loss per Mirror:	7.5 ppm
Cavity Length:	121 mm \pm 1 mm	Number of Measurements:	50
Max Test Pressure:	5E-7 torr		

Details			
High-Reflectivity Coating: \varnothing 8 mm, Single-Crystal GaAs/AlGaAs Multilayer			
Substrates: Fused Silica (Corning 7979), Super Polished, \varnothing 25.4 mm, 6.35 mm Thick			
-1 Å Roughness, 0.1 λ P-V, 10-5 S-D			
Backside: 10 arcmin Wedge with 1397 nm AR Coating			
Item #	Serial # (S/N)	Radius of Curvature	Contacting Annulus
XM23R8	21618-03	1 m	from d=18.5mm to d=25.4mm
XM23P8	TCS-FS-PL-29	PL	-
XMCR19	-	-	From d=9mm to d=25.4mm