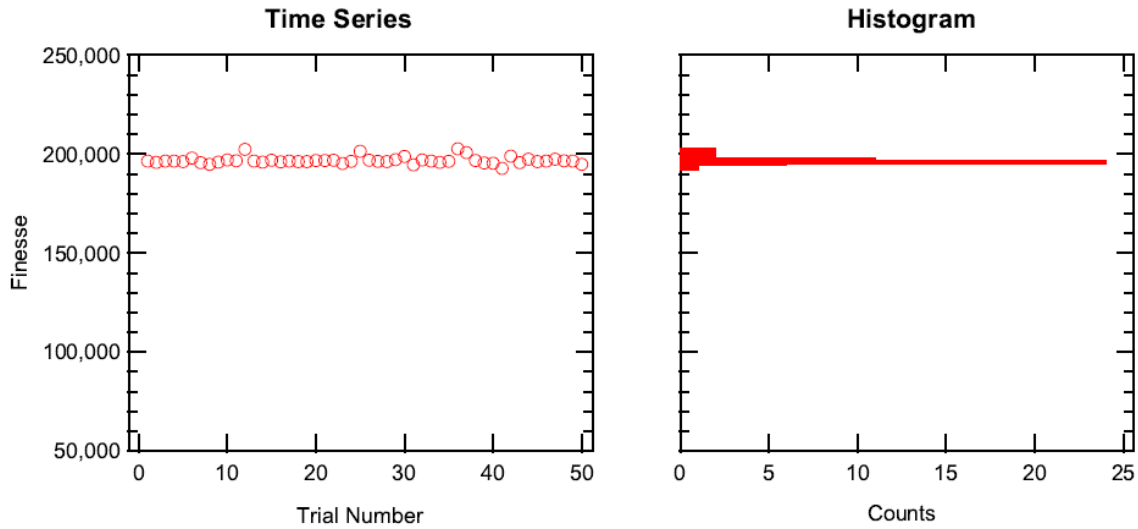


Measured Mirror Finesse at ~1550 nm	Transmission (T)	Scattering + Absorption (S+A)	Reflectivity (1-T-(S+A))
197,000	10 ppm	6 ppm	99.9984%

The cavity ring-down technique was used to measure the decay time constant of a TEM00 mode transmitted through the 1550 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 ambient air. The median measured finesse was 197,000 at 1550 nm ± 15 nm and was determined from the measured decay times and known cavity length of 90 mm ± 2 mm. Assuming identical losses for each optic, we infer a total loss of 16 ppm per mirror, which consists of 10 ppm in transmission, and a best estimate of 6 ppm scattering + absorption losses. Irises were used to ensure that the sampled points fell within a radius of 1.5 mm of the center of the mirror substrate. Details on methodology, data analysis, and raw data are available on request.



Test Date:	August 13, 2020	Laser Source:	Item # ML925B45F
Operator:	GWT	Test Wavelength:	1550 nm ± 15 nm
Cavity:	Run73	Target Finesse:	100,000
Input Mirror S/N:	20824-01	Measured Median Finesse:	197,000
Output Mirror S/N:	20824-07	Total Loss per Mirror:	16 ppm
Cavity Length:	90 mm ± 2 mm	Number of Measurements:	50
Max Test Pressure:	Atmosphere		

Details				
High-Reflectivity Coating: Ø8 mm, Single-Crystal GaAs/AlGaAs Multilayer				
Substrates: Fused Silica (Corning 7980), Super-Polished, Ø25.4 mm, 6.35 mm Thick ~1 Å Roughness, 0.1λ P-V, 10-5 S-D Backside: 30 arcmin Wedge with 1550 nm AR Coating				
Mirror	Item #	Serial # (S/N)	Radius of Curvature	Contacting Annulus
Input	XM12P8	20824-01	Planar	-
Output	XM12R8	20824-07	1 m	From d = 18.5 to d = 25.4 mm