NGSLR's measurement of the retro-reflector array response of various

LEO to GNSS satellites

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NASA's Next Generation Satellite Laser Ranging System (NGSLR) has successfully demonstrated daylight and nighttime tracking this year to satellites from LEO to GNSS orbits, using a 7-8 arcsecond beam divergence, a 43% QE Hamamatsu MCP-PMT with single photon detection, a narrow field of view (11 arcseconds), and a 1 mJ per pulse 2kHz repetition rate laser. We have compared the actual return rates we are getting against the theoretical link calculations, using the known system configuration parameters, an estimate of the sky transmission using locally measured visibility, and signal processing to extract the signal from the background noise. We can achieve good agreement between theory and measurement in most passes by using an estimated pointing error. We will show the results of this comparison along with our conclusions.