

I conducted a survey of archived observations taken from 2821 stellar targets by the HARPS spectroscope for potential signatures of lasers from extraterrestrial civilizations. The HARPS instrument examines light across a spectral range of 378-691 nanometers down to a resolution of .01 angstroms—allowing for high wavelength range and sensitivity across the optical spectrum which makes it an ideal instrument for optical SETI surveys. This search operates under the premise that such lasers would be distinct from their stellar spectral background and appear as anomalously narrow emission lines. We develop an algorithm designed to search for statistically significant spikes at least 3.5 standard deviations above the median flux in each wavelength window. Using an initial sample set of 100 stars, we established a classification system as well as methodologies for ruling out a number of types of false positives, including cosmic rays, bleedthrough from the calibration lamp, night sky airglow lines from the Earth's own atmosphere, and large clusters of emission lines which are likely the product of natural stellar activity and flaring. Our project split into two separate approaches—The Broad Search of one observation of each star in the 2821 star target list designed to detect constant lighthouse-like beacons, and a Deep Search of all observations of each star for more intermittent sources. The Deep Search is ongoing. The Broad Search is complete, and we investigated all 294 candidates our algorithm detected in all 2821 spectra, covering the entire range of stars. Of all 294 all candidates, 29.3% appeared to be in clusters indicative of natural emission lines, possibly from flaring activity. Cosmic rays were the most common type of false positives, accounting for 47.6% of all candidates. Bleedthrough from the calibration lamp accounted for 2.4% of all candidates and 3.1% of candidates were night sky atmospheric airglow lines which

evaded the algorithm's filters. Finally, 17.7% of all candidates remain unexplained and warrant further investigation as potential signatures of extraterrestrial lasers.