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The Next Steps (A4)  
SETI 1: SETI Science and Technology (1)

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THE BREAKTHROUGH LISTEN SEARCH FOR INTELLIGENT LIFE: TECHNOSIGNATURE  
SEARCH OF TRANSITING TESS TARGETS OF INTEREST

**Abstract**

The Breakthrough Listen Initiative, as part of its larger mission, is performing the most thorough technosignature search of nearby stars. Additionally, Breakthrough Listen is collaborating with scientists working on NASA's Transiting Exoplanet Survey Satellite (TESS), to examine TESS Targets of Interest (TOIs) for technosignatures. Here, we present a 1–11 GHz radio technosignature search of 61 TESS TOIs that were in transit during their Breakthrough Listen observation at the Robert C. Byrd Green Bank Telescope. We performed a narrowband Doppler drift search with a minimum S/N threshold of 10, across a drift rate range of  $\pm 4$  Hz/s, with a resolution of 3 Hz. We removed radio frequency interference by comparing signals across cadences of target sources. After interference removal, there are no remaining events in our survey, and therefore no technosignature signals-of-interest detected in this work. This null result implies that at L, S, C, and X bands, fewer than 52%, 20%, 16%, and 15%, respectively, of TESS TOIs possess a transmitter with an equivalent isotropic radiated power greater than a few times  $1e14$  W.