

We consider receiver synchronization in the non-contiguous orthogonal frequency division multiplexing (NC-OFDM)-based radio system in the presence of in-band interfering signal, which occupies the frequency-band between blocks of subcarriers (SCs) used by this system, i.e. in-band of NC-OFDM receiver spectrum range. This paper proposes a novel preamble-based synchronization algorithm for estimation of the time and frequency offset based on the received signal cross-correlation with the reference preamble. Contrary to the existing algorithms, it is robust against in-band interference including narrowband interference at the cost of increased complexity. Moreover, in the interference-free system, the probability of frame synchronization error is improved in comparison to all simulated algorithms.