ABSTRACT

TECHNIQUES FOR SELECTING SUBFRAME TYPE OR FOR INTERLEAVING SIGNALS FOR WIRELESS COMMUNICATIONS OVER UNLICENSED SPECTRUM

Methods and apparatuses are described in which an unlicensed spectrum is used for Long Term Evolution (LTE) communications. A first method includes comparing past transmission activity on an unlicensed spectrum to an activity threshold, transmitting a first subframe type in the unlicensed spectrum during a next active transmission when the past transmission activity is greater than the activity threshold, and transmitting a second subframe type in the unlicensed spectrum during a next active transmission when the past transmission activity is lesser than the activity threshold, the second subframe type comprising a more robust subframe type than the first subframe type. A second method includes generating one or both of PUCCH signals and PUSCH signals based on interleaved signals that increase nominal bandwidth occupancy in an unlicensed spectrum, and transmitting the generated signals in the unlicensed spectrum. A third method includes receiving the PUCCH signals and the PUSCH signals.

Figs. 26 and 28