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Integrated Power Saving for Multiple Relays and UEs in LTE-TDD

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Abstract : In this paper, the design of integrated sleep scheduling for relay nodes and user equipments under a Donor eNB (DeNB) in the mode of Time Division Duplex (TDD) in LTE-A is presented. The idea of virtual time is proposed to deal with the discontinuous pattern of the available radio resource in TDD, and based on the estimation of the traffic load, three power saving schemes in the top-down strategy are presented. Associated mechanisms in each scheme including calculation of the virtual subframe capacity, the algorithm of integrated sleep scheduling, and the mapping mechanisms for the backhaul link and the access link are presented in the paper. Simulation study shows the advantage of the proposed schemes in energy saving over the standard DRX scheme.

Keywords : LTE-A, relay, TDD, power saving
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