Abstract

In this paper, we have study the optimal design for synchronous wireless information and power transfer (SWIPT) in downlink multiuser orthogonal frequency division multiplexing (OFDM) systems, where the users gather energy and explain information by using the same type of signals received from a stable access point (AP). For the transmission of information, we have to consider two types of numerous access patterns, called, time division multiple access (TDMA) and orthogonal frequency division multiple access (OFDMA). Beneath the above two scenarios, we locate the problem of maximizing the weighted sum-rate overall users by varying the time or frequency power arrangement and either TS or PS ratio, subjected to a minimum harvested energy constraint on each user as well as a highest and or overall transmission power constraint.. It is revealed that the highest power constraint inflict on each OFDM SC as well as the number of users in the system play basic roles in the rate-energy performance comparison by the two types of proposed arrangements.


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**Index Terms**

Computer Science  
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**Keywords**

OFDM, Sub- Carrier allocation, TDMA, Power splitting, time Switching.