Secure Energy Efficiency Maximization in Cognitive Satellite-Terrestrial Networks

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Abstract:
This article investigates the secure energy efficiency (EE) optimization problem in a cognitive satellite-terrestrial network with a capable eavesdropper. The objective i...

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I. Introduction

II. System Model

III. Proposed Secure EE Maximization Scheme

IV. Numerical Results

V. Conclusion

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To overcome the drawbacks of terrestrial infrastructure with fair and high-quality services due to limited coverage areas, integrated satellite and terrestrial networks have been proposed in many fields for various applications, which are especially beneficial for users in rural or disaster-stricken scenarios [1], [2]. With the rapid development of multimedia and broadband services, the problem for spectrum scarcity is becoming severely urgent for both satellite and terrestrial networks. In this regard, various researchers propose the application of cognitive radio, which leads to an emerging architecture known as cognitive satellite-terrestrial networks (CSTNs) [3].