66th International Astronautical Congress 2015

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Interactive Presentations (IP)

Author: Mr. Hongfeng Du
CASC, China, 115982525@qq.com

WSNOS SYSTEM MULTIUSER DESIGN

Abstract

Wireless Sensor Network over Satellites(WSNoS) utilize satellite collecting sensor messages and sending them instantaneously to the ground terminals. Satellites were only used as high-speed data transmission relay stations between macro-districts in the conventional design. With the development of cube satellites, this satellite system proposed in this paper is not only used for up-link data collecting and relay station, but also used for down-link broadcasting and sensor telecontrol. In this circumstance, multiusers design is becoming more and more important. This paper analyses beamforming and Orbit prediction in space domain, frequency domain, time domain and code domain based on wireless sensor network operation system technology. Besides that, this paper also focus on several key techniques about the WSNoS multiuser design, such as DOA estimation, DFH, GNSS granted, self-synchronized, multiuser detection and power control etc. Argumentations and relevant solution schemes are made with thus key techniques.