

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Advanced Systems (2)

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A NOVEL WIRELESS REMOTE COMMUNICATION SCHEME FOR FINITE ASTRONAUTS

Abstract

ABSTRACT: Voice, physiology data and image data service are basic requirements for future astronaut's wireless remote communications. In order to achieve good quality of services, a wireless remote communication system with low self-interference and good EMC(Electro Magnetic Compatibility) is necessary. The prior art for voice physiology data communication and image data transmission is with different wireless communication system, for example, Blue-tooth of WLAN for voice physiology service, 2.4GHz wideband transmission for image data service. This paper aims to present a novel wireless remote communication scheme for all data service of finite astronauts, which no more than eight. This paper is organized as follows: Part I is a concise background introduction for astronaut data service requirements and communication environment description. Part II is a theoretical analysis for ISI (Inference of Inerter-symbol) and MAI (Multiple Access Interference) of CDMA (Code Division Multiple Access), especially for Gold and LCZ (Low Correlation Zone) sequence. The novel solutions scheme is presented Part III. The simulation results and performance comparison between Gold and LCZ with AWGN, Rayleigh and multi-path Rayleigh channel are given. Finally some conclusions and future research work are discussed in the final part.