Advanced Technique of Spacecraft Flight Control of One Orbital Constellation Using Intersatellite Radio Links

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Abstract. The paper is devoted to the problem of boosting the effectiveness of a flight control system of spacecraft in the orbital constellation. The paper offers to apply modern transferring methods using the protocol stack TCP/IP and to employ up-to-date avenues of remote control. The concept of creating orbital constellations with spacecraft related to intersatellite radio links will allow one to control the entire orbital constellation in quasi-real time. Thus, an orbital constellation will be a digital network of data transfer where each spacecraft will be as a relay satellite to transfer control data to any spacecraft as well as will serve as an object to be controlled. The article gives a justification to use the above-mentioned technologies and graph and network schemes for linkage to control a spacecraft flight.

Keywords: communication, spacecraft, orbital constellation, flight control system, radio link, command and measurement station, onboard equipment, antenna system