

Poster Session (P)

Poster Lunch (1)

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## RESEARCH ON TT&C AND DATA TRANSMISSION INTEGRATED SYSTEM OF THE TT&C SYSTEM OF SATELLITE

### Abstract

For traditional TT&C system of satellite used each measurement channel and telecommand channel or telemetry channel, the channels are complex. A simplified design method of integration of TT&C and data transmission is described. The uplink measurement channel and telecommand channel are combined, and the downlink measurement channel and telemetry channel are combined. The non-coherent measurement principle is adopted, the function of uplink and downlink high speed data transmission and high accuracy ranging and velocity measurement is realized. The accuracy ranging and velocity measurement is analyzed, the uplink margin and downlink margin is budgeted. With the test data and in-orbit verification, the results show that, the uplink and downlink signal design is simplified, the complexity of system is reduced, the uplink and downlink bit rate is more than 1Mbps. Accuracy of ranging and velocity measurement is equivalent with non-coherent measurement system, the accuracy of ranging is superior to 2m, the accuracy of velocity measurement is superior to 2cm/s. The system can be used in other satellites that need high speed data transmission and high accuracy ranging and velocity measurement.