

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Near-Earth and Interplanetary Communications (6)

Author: Ms. Nurul Huda Abd Rahman
Astronautic Technology SDN BHD, Malaysia, nurul_huda@atsb.my

Mrs. Fitri Dewi Jaswar
Astronautic Technology SDN BHD, Malaysia, fitri@atsb.my
Dr. Ahmad Sabirin Arshad
Astronautic Technology SDN BHD, Malaysia, sabirin@atsb.my

PERFORMANCE VERIFICATION OF X-BAND SATELLITE TRANSMISSION SYSTEM USING
COMPUTER SIMULATION TOOL**Abstract**

The most critical element in the fundamental of the satellite development is to ensure that the specifications are correctly defined according to the needs of the satellite mission. For example, as for the RF subsystems, the transmitted power shall be correctly calculated and simulated to ensure that there will be sufficient margin for the satellite to communicate with the ground station. Apart from that, the data rate and the phase noise can also be simulated and predicted before the hardware integration. With proper tools, various parameters can be verified and thus, the preliminary design of the subsystems can be established. This study focuses on the RF performance verification of the X-band satellite transmission system by using computer simulation tool, specifically on the system level simulation. Analysis was conducted in both frequency and time domain to observe the behaviour of each parameter. The simulation results were finally compared to the measurement results to validate the performance.