

SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Fixed and Broadcast Communications (4)

Author: Dr. Qiang Ma
China Academy of Space Technology (CAST), China, maqiang00@gmail.com

DEVELOPMENT OF AN AUTOMATIC RF TEST BENCH FOR COMMUNICATION SATELLITES

Abstract

With the technical development of the communication satellite and its wide applications, the number of transponders of the communication satellite is increasing very fast and can be more than 40 now. To test the RF performance of all transponders which consist of nominal ones and redundant ones, the test configurations can be more than 200. There are about 4 to 10 test items in each configuration, so the whole test is a lot of work. An automatic RF test bench is developed to improve the test efficiency and reduce human load. The hardware of the test bench is composed of some general RF instruments and a switch matrix. And an automatic test software is developed to manage all the operations during the test including setting the test parameters, operating the instruments, sending command, receiving telemetry, creating test reports and so on. The RF test bench has been applied in the test of several communication satellites and is proved to be very effective.