

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

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## INTEGRATED KA AND L/S BAND PLATFORM FOR FIXED AND MOBILE SATELLITE SERVICES

**Abstract**

It is nearly half a century since the establishment of first commercial satellite communication system. Over these years satellite communication systems have grown in leaps and bounds which included threats of extinction from optical fibre and digital compression technologies. However, it is to the intrinsic features of satellites communication systems of wide reach that they have successfully thwarted off the challenges and maintained a steady growth. Due to their technical characteristics initially C-band and later Ku-band systems have been popular to provide TV distribution, VSAT and DTH services. Consequently the geo-stationary orbit has become very crowded and nowadays it is almost impossible for a new system to come up in these bands. Of late Ka-band systems have become popular. Ka-band satellites offer several advantages like large bandwidth availability, higher bit rates, ease of generation of multiple beam satellites, small size user terminals, etc. With increasing mobility of the people, availability of communication and information services in fixed, nomadic and mobile environments is an important requirement. The frequency allocations in Ka-band include those for Fixed Satellite Service (FSS) and Mobile Satellite Service (MSS). The Ka-band satellite systems therefore provide an opportunity to provide an integrated platform for both FSS and MSS. The Ka-band frequencies, however, severely suffer from atmospheric and weather effects. these have more impact on MSS which are constrained to operate with very small antennas. It is in this context that inclusion of L/S band frequencies, which are less susceptible to weather effects, in a Ka-band satellite are studied with respect to provide additional wide area coverage and reception in shadow areas through a complementary ground component. The paper addresses the features, configuration and services through such an integrated platform.