

## Military and Scientific Applications Drive Development of Extended Ka-band Circuits

### Intelligence, Surveillance, Reconnaissance (ISR)

Airborne ISR platforms are looking beyond the standard Ka-band (27.5-31GHz) at alternative Ka-band spectrum to add capacity and enhance security. Non-standard Ka-band frequencies will require new terminal designs. New RF chipsets and output combining structures are needed for the amplifiers. Efficiency improvements are critical to enable these higher data rates for extended unmanned flights. Power amplifiers must be more efficient and located very close to the antenna to minimize RF losses. Split box designs, with the power amplifier mounted on the antenna and multi-band block upconverter located elsewhere, reduce required SSPA linear output power, but demand operation in challenging cabin-external environments.



**Enhanced Ka-band Split Box**  
**Conduction-Cooled SSPA and BUC**  
Up to 6 Switchable 1GHz Bands  
20W Linear Power  
-55C to +70C operation

**Programmable Multi-band Upconverter**  
2.2 kg (5 lb)  
38x203x203mm (1.5"x8"x8")

**Ka-band Dual Output SSPA**  
2.2 kg (5lb)  
57x114x228mm (2.25"x4.5"x9")

*Multiple-band Enhanced Ka SSPA/BUC for ISR platform is split to increase EIRP and efficiency*

### Tracking and Data Relay Satellite System (TDRSS)

25.5 to 27.5 GHz is in use with the TDRSS Ka system. With the upcoming Artemis Moon Mission there is a lot of technological development across Ka-band. 'NASA is developing and implementing key communication and navigation technologies to support robust exploration at and near the Moon. These technologies include the use of GPS signals by spacecraft and lunar surface systems for navigation, optical communications technology to allow multi-gigabit data connections back to the Earth, and expanding the Internet architecture into space through Disruption Tolerant Networking (DTN)' - Artemis Plan

Comtech Xicom has both TWTA and SSPA/BUC products across K-band from 22 to 31 GHz.

Contact Xicom for more information. [info@xicomtech.com](mailto:info@xicomtech.com)