



CURTIS E. LEMAY CENTER

FOR DOCTRINE DEVELOPMENT AND EDUCATION



ANNEX 3-14 SPACE OPERATIONS

APPENDIX B: MILSATCOM FREQUENCY BANDS

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Narrowband SATCOM

Narrowband systems support secure voice and data transmission at relatively low data rates for both mobile and fixed users by providing access on a single dedicated channel or demand assigned multiple access channel. Narrowband communications support: emergency action message dissemination; tactical [command and control](#) (C2); low data rate broadcasts; highly mobile, tactical users; compact terminal equipment and directional and omni-directional antennas. Narrowband systems include: mobile and fixed terminals installed in air, sea, and ground platforms; command centers; and [missile launch control facilities](#). Narrowband communications use: ultra high frequencies that allow excellent transmission quality through all types of terrestrial weather to small, tactical terminals. However, ultra high frequencies can be disrupted by [ionospheric scintillation](#). Additionally, the bandwidth itself is limited and therefore can only achieve data rates in the kilobits-per-second range.

Wideband SATCOM

Wideband systems support multichannel, secure voice, and high data-rate communications for C2, crisis management, and intelligence data transfer. Wideband communications support: government, strategic, and tactical users such as the White House Communications Agency, Uniformed Services, US Department of State, Joint Staff, combatant commanders (CCDR), and Joint Task Force, coalition forces, and mobile units. Wideband [satellite communication](#) (SATCOM) systems include: Defense Information Services Network; Non-Secure Internet Protocol Router Network; SECRET Internet Protocol Router Network; and Joint Worldwide Intelligence Communications System. Wideband communication use: tactical terminals support exercises and the deployed operations requirements of tactical forces for high-capacity, multichannel communications aboard ships and aircraft, as well as in support of ground forces.

Protected SATCOM

Protected SATCOM systems support survivable voice and data communications not normally found on other systems. Protected SATCOM throughput is less than wideband. Protected SATCOM characteristics, such as narrow beamwidths and the use of spread spectrum and frequency hopping technology, provide capabilities such as anti-jam, scintillation-resistance, low probability of intercept, and low probability of detection. Protected SATCOM supports: Critical government communications systems. Protected SATCOM also permits the use of smaller antennas that increase its

mobility, enabling wider use of manpack, submarine, airborne, and other mobile terminals. Because of spot beam power considerations, use of smaller antennas will have a limiting effect on the number of simultaneous users within the satellite's footprint. Protected SATCOM systems include secure and encrypted communication systems. Protected SATCOM provides survivable communication at a reduced data rate for systems used in a hostile environment where a wideband system could be degraded. Due to these unique capabilities, the use of the protected SATCOM frequency band has often been reserved for the most critical strategic forces and C2 systems. However, access to the defense satellite communications system also provides these enhanced capabilities through select satellite ground terminals.
