

Communication Suite for Special Mission Aircraft

ELK-1882 NC² and ARC-840 Product Families

Introduction

Special Mission Aircraft performing Intelligence, Surveillance, Reconnaissance, and AEW&C missions generate large volumes of critical operational data, thereby requiring high-performing, reliable communications between aircraft and ground stations.

To meet these rigorous demands, ELTA's Communications Suite for Special Mission Aircraft provides both line-of-sight (LOS) and beyond-line-of-sight (BLOS) communications for voice, data and video. It transfers broadband data from onboard sensors such as radar, SIGINT and VISINT to both LOS and BLOS receivers on the ground. With high data rates and low latency, the suite provides the complete range of secure, reliable and uninterrupted communications required by Special Mission Aircraft. Moreover, it relays communications between forces that do not share a line of sight with one another.

The Communications Suite is field-proven with decades of operational deployment at customers across the world, on aircraft from Gulfstream, Bombardier, Embraer, Boeing, and others. It is based on ELTA's ELK-1882 NC² SATCOM & LOS and ARC-840 Multi-Channel Software Defined Radio product families.

The modular suite can be configured with the following communication capabilities:

LOS – primary datalink for transfer of all the sensor data to Ground Datalink Terminals (GDT).

SATCOM – used for long distance, BLOS data communication to HQ and allied forces. Can also operate as a backup to the LOS communications to ensure continuous data connection.

Software Defined Radio (SDR) ARC-840D – enables secure voice and data communication with other aircraft, C4I centers (fixed or mobile ground stations), and ATC (Air Traffic Control) operators.

Key Features

- Long-range, very high data rate
- Low latency
- Modular – fully adaptable to customer requirements (frequency band options, modulations, transmission power, antenna) – see table
- COMSEC & TRANSEC - Resistant to jamming by means of intelligent algorithms
- Encryption supported – complies to 256-bit AES
- MIL STD supported



AESA SATCOM Terminal/ Dish AAU



Directional LOS AAU



NC2 Hub/Terminal TRU



ARC-840D

Specifications

The ruggedized suite is designed for highly reliable operation in harsh environments, meeting MIL STD – 810 F & G. Specific configurations are customized to match the aircraft type, size and mission requirements.

Parameters/ Specifications	LOS	SATCOM	SDR
Frequency Band	C, X, Ku, Ka	Ku, Ka	V/UHF L band
Data Rate* (Up/Down adapted for customer requirements)	Downlink: Up to 100Mbps @400Km Uplink: Up to 2Mbps @400Km	Outbound: up to 200Kbps Inbound: up to 15Mbps	75bps – 56Kbps UHF 100Kbps – 2Mbps U/L-band MANET Networks
Down & Uplink TDD = Time Division Duplex FDD = Frequency Division Duplex	TDD/FDD	FDD	FDD
Airborne Antenna	Omnidirectional, Directional (Planar/dish)	Directional (Dish - 30, 46, 60, 75cm) AESA	Omnidirectional
Airborne Tracking	Auto tracking, 2 or 3 axis, pedestal	Auto tracking, 2 or 3 axis, Airborne pedestal	
Payload Weight (Depends on configuration)	4-20Kg	20Kg	10Kg

*Applicable to link budget.

Communication Suite for Special Mission Aircraft ELK-1882 NC² and ARC-840 Product Families

Flexible, Secure, and Coexistent Communications

The Communications Suite supports efficient point-to-point and point-to-multipoint communications between the aircraft and command and control centers.

It employs Communications Security (COMSEC) and Transmission Security (TRANSEC), utilizing intelligent algorithms and methods such as frequency hopping and spread-spectrum techniques to achieve secure operation. Moreover, it exploits the availability of multiple channels on different frequency bands to execute effective Electronic Counter-Counter Measure (ECCM) strategies to overcome jamming and cyber-attacks.

Finally, the suite is designed for coexistence with onboard transmitting sensors such as radars. This is achieved through intelligent signal processing and predefined priorities, thereby guaranteeing optimal performance of all the transmitting systems and the communication suite.



Point-to-Point & Point-to-Multipoint Communications

02/23

IAI – ELTA GROUP
WWW.IAI.CO.IL
MARKET@ELTA.CO.IL