aselsan

TASMUS

www.aselsan.com.tr


aselsan

TASMUS

Tactical Area Communications System

TASMUS, Tactical Area Communications System, is a network centric communication infrastructure that enables obtaining a common picture of the battlefield in near-real time and sharing data among battlefield systems.

TASMUS forms a survivable, flexible, secure and mobile network to address all the present and future communication requirements of the commanders in the tactical field.

Several command & control functions such as air defense, fire support, maneuver control, intelligence, electronic warfare and logistic support need to be executed simultaneously on the battlefield through rapid and reliable exchange of information. TASMUS infrastructure provides the necessary communication support to all these tactical applications.

TASMUS brings together state-of-the-art military communication technologies, enabling user access through mobile radios and Combat Net Radio networks in addition to wired local area access in the tactical field.

TASMUS is deployed in the center of military operations such that seamless communication between the army and battalion/company level is achieved. It also provides interfaces to the strategic telecom and data networks.

FEATURES

The tactical battlefield has now become a ground for extensive digital data exchange where many sensors, weapons and command centers need to exchange a large amount of data promptly. Moreover, these units have to communicate with each other while on the move because the military doctrines now heavily emphasize on mobility and flexibility. TASMUS provides this flexible communication infrastructure and delivers secure communication services including voice (clear/encrypted), encrypted IP data, video teleconference, file transfer and fax. System is built with several Electronic Counter Measures such as LPI/LPD, COMSEC (with end-to-end encryption) and TRANSEC.
The new generation of Tactical Area Communication System (TASMUS-II), supports full IP based communications. Network nodes are connected by state-of-the art ASELSAN GRC-5220 Tactical IP Radio Links. GRC-5220 is an OFDM based, frequency-hopping radio that can support over 200 Mbps Ethernet throughput (100 Mbps full-duplex) using MIMO technology. Furthermore, it supports long-range connectivity at distances beyond 100 km.

TASMUS-II comes with IP QoS (Quality of Service) feature, which allows delay sensitive/high priority data to be successfully delivered even when the network is congested. In addition, thanks to multi-path routing capability, the traffic between two network nodes can be sent over more than one path at the same time. This capability not only maximizes the network utilization, but also ensures successful delivery of the critical data under heavy traffic conditions.

TASMUS-II infrastructure comes with the following additional key features:

- Mobility through ASELSAN's Tactical Software Defined Networking Radios (SDR).
- Interfaces to the other strategic telecom and data networks, PTT networks, SATCOM and tactical Combat Net Radios.
- Interoperability with the Other Nations, with Allied Networks, and with Strategic (Commercial/Military) Networks.
- Electronic Protection Measures (LPI/LPD Capability, end-to-end COMSEC, link-by-link TRANSEC).
- Network management and planning system (SYSCON) that meets military network management and planning requirements by using IP based SNMP protocol.
- Information services including; the provision of near-real time picture of the battlefield, digital map and geographic information, meteorological information, intelligence reports, and logistic information.
- Modular infrastructure that can be continuously upgraded according to customer requirements.

SYSTEM ARCHITECTURE

The system architecture consists of three interconnected subsystems, the Wide Area Subsystem, the Mobile Subsystem, and the Local Area Subsystem.

WIDE AREA SUBSYSTEM

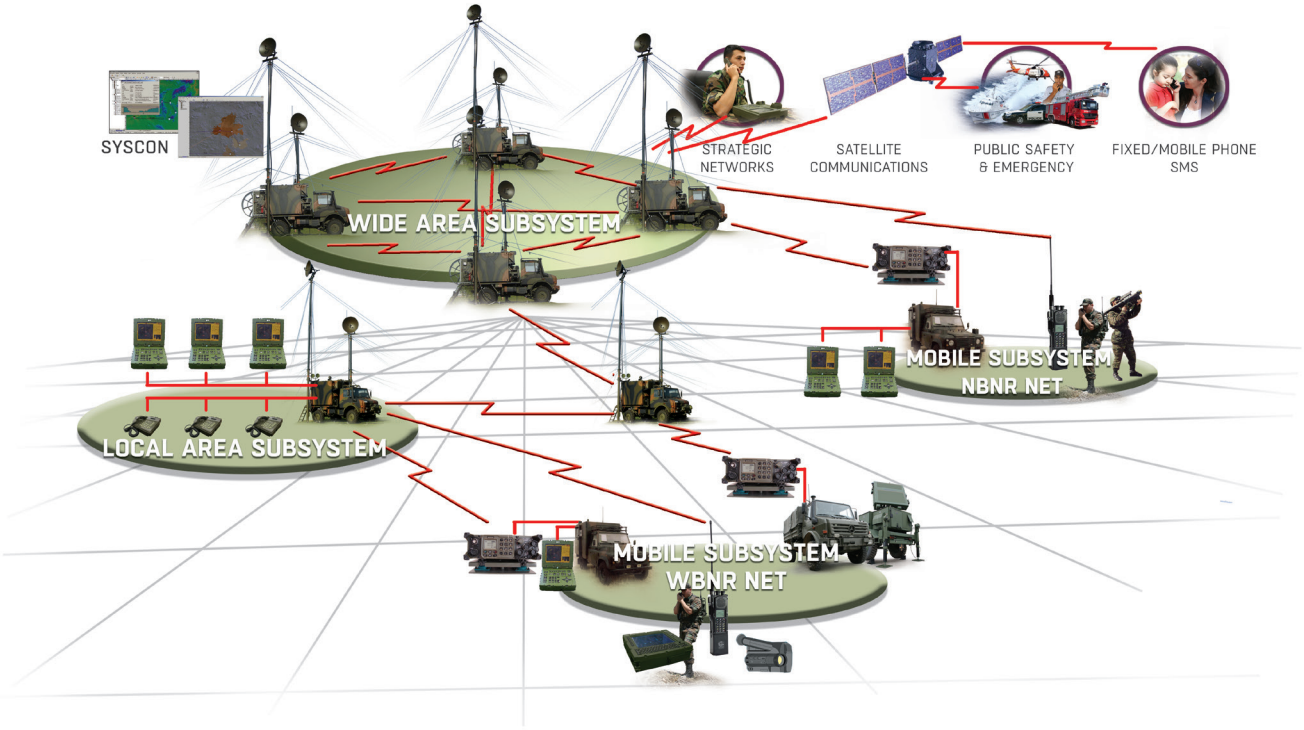
Wide Area Subsystem is the highest layer in the architecture, which carries out the backbone switching. The System supports both IPv4 and IPv6. Interfaces to the strategic systems are supported on the Wide Area Subsystem. Network nodes are connected to each other via radio links and/or F/O links establishing the Wide Area Subsystem.

MOBILE SUBSYSTEM

In the Mobile Subsystem, mobile subscribers use ASELSAN's handheld and vehicular Software Defined Networking Radio's to access the TASMUS switching backbone. Network Nodes are equipped with gateway radios that connect the mobile subsystem to the Wide Area Subsystem. Two gateway radios are installed on Network Nodes: one for (NBNR) Band Networking Radio Network and another for Wide Band Networking Radio (WBNR) Network.

LOCAL AREA SUBSYSTEM

Each network node provides access to users through wired Ethernet interfaces. Through these interfaces, secure IP voice and data communication is provided.



SYSTEM MANAGEMENT OF TASMUS

SYStem CONtrol Unit (SYSCON) carries out online and offline management of TASMUS network. SYSCON is used to manage the planning and execution of all the communication plans. SYSCON's activities start with offline planning and covers all online actions involved with running the plan on the battlefield.

SYSCON has three main functions:

SYSTEM PLANNING/SYSTEM CONTROL/C4I SUPPORT SERVICES

- Network Planning: Node Placement, Link Planning, Frequency Planning using Radio Coverage and Link Analysis.
- Configuration Planning: Subscriber Planning, IP Network - VPN - QoS Planning, Device Configuration.

SYSTEM CONTROL

- Configuration Management: Subscriber Management, IP Network Management, Device Management, Cryptographic Key Management (using SNMPv.3)
- Alarm Monitoring
- Performance and IP Network Monitoring

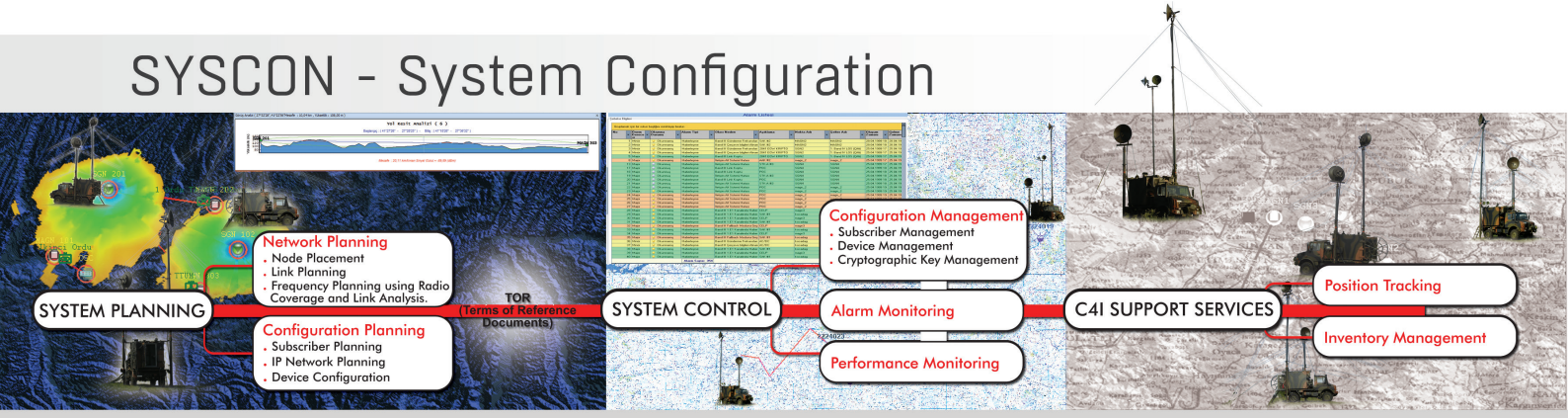
C4I SUPPORT SERVICES

- Position Tracking
- Inventory Management

Syscon Computer

Syscon Computer

SYSCON - System Configuration



SECURE COMMUNICATIONS WITH TASMUS

TASMUS provides highest level of communication security (COMSEC) and transmission security (TRANSEC). System comes with several Electronic Protection Measures.

COMSEC:

- Encryption: All types of voice, data and video communication over the TASMUS network are encrypted before being transmitted:
  - IP Crypto Device provides, end-to-end, high speed, and secure IP encryption based on next generation IP network security standards.
  - Link Encryption Device provides secure data communication over links, through Ethernet level encryption and other link level protection measures.
  - Mini IP Encryption Device provides secure data and voice communication over Engineering Order Wine (EOW) channels of GRC-5220 Radio Link devices.
  - ASELSAN Software Define Networking Radios and ASELSAN secure VoIP terminals also supports end-to-end encryption. As a whole, all user data is encrypted in an end-to-end fashion, no matter which encryption device is used.
- Authentication: Throughout the system, messages, users and encryption entities (e.g. IP Encryption Devices, ASELSAN Software Defined Networking Radios) are authenticated to make sure that secret information is not compromised. Furthermore, the authentication of users is validated by a Crypto Ignition Key as well as using a password.
- Integrity: There are strong integrity check mechanisms for each message sent over both ASELSAN Software Defined Networking Radios as well as ASELSAN GRC-5220 Tactical IP Radio Links. ASELSAN Secure Key Management System (Security Manager) provides remote cryptographic key management and network management functionalities for Cryptographic Products.

TRANSEC:

Transmission Security is established through ASELSAN GRC-5220 Tactical IP Radio Link devices and ASELSAN Software Define Networking Radios. Both radio family feature state-of-the art electronic protection measures. GRC-5220 radios support full band (NATO Band III+/Band IV) adaptive fast frequency hopping, automatic power control, anti-spoofing, Forward Error Correction (FEC) and more. ASELSAN Software Define Networking Radios are equipped with several advanced networking waveforms with several TRANSEC features including frequency hopping/Direct Sequence Spread Spectrum, Anti-spoofing, FEC, and Automatic Adaptive Relaying.

Key Distribution Terminal

IP Crypto Device

Link Encyption Device

SUBSYSTEMS OF TASMUS

SOFTWARE DEFINED NETWORKING RADIOS (SDNR's)

TASMUS supports two distinct waveforms: Narrow Band Networking Radio Waveform and Wide Band Networking Radio Network Waveform. These two waveforms are used to connect different battlefield systems (e.g., fire support, air defense) to the system. Through the gateway radios (SDNR Radio Access Point), mobile segment subscribers are able to access to the TASMUS switching backbone.

TACTICAL ROUTERS

Tactical Routers provides IP based voice, data, and video communication services and facilitates fast routing/switching capabilities. The tactical routers support IP Qos and multi-path routing features. Moreover, it they enable communication among different IP based user equipments like LAN Equipment (PC, router), VoIP phones, Wireless Local Area Networks Equipment and provides fully integrated IP solution for radio networks. Tactical IP Switch is completely based on IP for routing and switching functions.

GRC-5220 TACTICAL IP RADIO LINK

GRC-5220 is an Orthogonal Frequency Division Multiple Access (OFDMA) based high capacity Ethernet radio, specially designed for outdoor use in the tactical field to provide secure and reliable communication for on-the-move IP services.

GRC-5220 operates both under Line-of-Sight (LOS) and Non-LOS (NLOS) conditions with Point-to-Point (PTP) and Point-to-Multipoint (PMP) modes.

GRC-5220 can support over 200 Mbps Ethernet throughput (100 Mbps full-duplex) using MIMO technology. Furthermore, it supports communication over very long ranges (beyond 100 km).

The radio system can operate at two different military frequency bands. NATO Band-III+ (1350 - 2690 MHz) and NATO Band-IV (4400 - 5000 MHz) are supported using the corresponding Radio Frequency Units (RFU).

GRC-5220 offers the latest ECCM features including full band adaptive fast frequency hopping and automatic power control and more in order to overcome advanced electronic warfare threats.

SECURE VOIP PHONE

Secure VoIP Phone supports encrypted voice/ IP data and video communications on the same terminal. Secure VoIP phone is a rugged device that can be used in both tactical and strategic systems. Secure VoIP phone supports approved military encryption algorithms.

Notes.

Notes.


aselsan

HBT-TASMUS/ E001 / 10-2020

aselsan

ASELSAN A.Ş. is a Turkish Armed Forces Foundation company.

P: +90 (312) 592 10 00 **F**: +90 (312) 354 13 02
www.aselsan.com.tr | hbtmarketing@aselsan.com.tr