The modem is designed based on the software-radio paradigm, meaning different configurations can be implemented without any change of hardware. The waveform is selected through the keyboard and display. SR40 and SR50 can work both as part of a fully automated DAMA network (requires installation of the Network Management System) or setting up point to point links. In both scenarios, the modems can be integrated in existing M&C systems through standard SNMP interfaces.

The core of the modems is an advanced signal processing board based on state-of-the-art DSP and FPGA technology. IF frequency at 70 MHz uses no analog mixing neither at the RX nor TX chains.

Additionally, an on-board controller and a powerful network processor allow implementation of advanced networking and general purpose applications. SR40 and SR50 can be configured as router and bridge modems in order to provide the greatest flexibility when integrated in existing networks.

Optional L-band interface and TCP/IP acceleration.
**At last secure communications and mobility come together**

**Introduction**

Nowadays, two of the most important trends in the telecommunications sector are secure communications and mobility. Future leading communications systems are designed to meet both Judy requirements by means of using advanced and proven technology.

The use of real-time configurable 5G-like, IP and TDMA networks (STANAG 4606) and CDMA (STANAG 4601) waveforms provides a secure access to the satellite offering the highest degree of resistance to jamming and eavesdropping, as well as providing a robust and difficult to intercept modulation.

Remote terminals Non-fixed remote terminals provide great versatility and coverages given the size of the network and an equipment as well as deployment in remote locations, thanks to its low consumption, and the low frequency power loss and the portable performance terminals and terminal equipment terminals can be fully autonomous.

The system provides two-way communication between mobile and fixed terminals. It is built around the most advanced concept of Digital Multiple Access (DAMA) technology, with several types of terminals: mobile, fixed, portable or standalone terminals.

### Service Characteristics

<table>
<thead>
<tr>
<th>Service</th>
<th>Bandwidth</th>
<th>BER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data</td>
<td>4.4 to 169 kbps</td>
<td>&lt; 10E-6</td>
</tr>
<tr>
<td>Voice</td>
<td>8 kbit/s</td>
<td>&lt; 10E-3</td>
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**Remote terminals**

Many GHES can be used, and they act as a gateway between the satellite network and external networks (e.g. POTS or Internet). In this way, any terminal user can communicate with external networks through DAMA terminals, and they can communicate with each other, according to the location of the terminals.

**System overview**

The system provides a platform for easy integration with other terminals and networks. Many GHES can be used, and they act as a gateway between the satellite network and external networks (e.g. POTS or Internet). In this way, any terminal user can communicate with external networks through DAMA terminals, and they can communicate with each other, according to the location of the terminals.

### Highlights

- Software radio enables, with different waveforms, a single access to the satellite offering the highest degree of resistance to jamming and eavesdropping.
- Low frequency and easy covert communications.
- Several types of terminals, mobile, portable, and standalone.
- Defined radio (SDR) paradigm, so that it is possible to change the configuration of the system and adapt it to applications-specific customer requirements.

**Functionality**

- Singlechannel (SC)
- Multichannel (MC)

**Remote terminal configurations**

<table>
<thead>
<tr>
<th>Remote terminal configuration</th>
<th>Rack (R)</th>
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<tr>
<td>Product family</td>
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<td>GHES</td>
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**Product family**

The system provides two-way communication between mobile and fixed terminals. The system supports all of these at the same time with just one MPC.

### System overview

The system is provided with a system performance indicator which allows to optimize the performance of the satellite network and external networks. Remote terminals bandwidth can be programmed from the station in order to optimize resource usage, allowing the user to meet the requirements. The system also provides with an SDR solution which allows an easy and fast integration with other user handling and control systems.
Introduction

Nowadays two of the most important trends in military and non-military telecommunications are secure communications and mobility. Modern satellite communications systems are designed to bring together these two requirements by means of using advanced and proven technology.

The use of reconfigurable and flexible software-defined radio (SDR) technology as defined radio (SDR) paradigm, so that it is possible to change the configuration of the modem and adapt it to application-specific customer requirements.

The system can work in L-, S-, C- and X-bands, for easier flexibility, supporting both mobile and fixed satellite communications independently of their location. Thanks to its low consumption, the use of powerful power supplies and wide panel rechargeable batteries the terminal can be fully autonomous.

The system provides two-way communications between satellites and external networks. Many GHES can be used, and they do not need to be at the same location of the NMS. Different types of terminals are available, depending on the application and placed terminal requirements; fixed broadband, mobile...

The system supports all of them at the same time with just one NMS.

Non-fixed remote terminals provide great versatility and coverage given the wide area to communicate at any location as well as the enhanced security offered by the remote satellite communications includes.

Remote terminals

The system provides two-way communications between remote terminals and a terminal developed by Indra is built around the most advanced concept of robust assigned multiple access (DAMA) multistar network, which can be programmed from the NMS in order to organize resources in a efficient way attending the user requirements. Non-fixed remote terminals can be provided with an SDR modem which allow an easy and quick migration with other user handling and control systems.

System overview

The network is a fully automated Directly Acquired Resource (DAR) network and provides the necessary services using a software-defined radio (SDR) concept and Indra’s own technology. A DAMA network is designed to meet the requirements of territories or areas served by a single and flexible platform, based on software radio technology. The network provides a secure access to services available at any time with just one NMS. Different types of terminals are available depending on the application and placed terminal requirements: fixed broadband, mobile...

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Successful remote communications include:

DAMA SOFTWARE-DEFINED RADIO SATELLITE COMMUNICATIONS SYSTEM

At last secure communications and mobility come together

Introduction

Nowadays two of the most important trends in military and non-military telecommunications are secure communications and mobility. Modern satellite communications systems are designed to bring together both requirements by means of using advanced and proven technology.

The use of reconfigurable and flexible software-defined radio (SDR) technology as defined radio (SDR) paradigm, so that it is possible to change the configuration of the modem and adapt it to application-specific customer requirements.

The system can work in L-, S-, C- and X-bands, for easier flexibility, supporting both mobile and fixed satellite communications independently of their location. Thanks to its low consumption, the use of powerful power supplies and wide panel rechargeable batteries the terminal can be fully autonomous.

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DAMA SOFTWARE-DEFINED RADIO SATELLITE COMMUNICATIONS SYSTEM

Introduction

Nowadays two of the most important trends within the telecommunications users are secure communications and mobility. Fixed satellite communications system is designed to be a ‘fit-together’ body requiring by means of using advanced and proven technology.

The use of mobile-defined radio (SDR) paradigm, so that it is possible to change the configuration of the modem and adapt it to applications and specific customer requirements. The system supports all types of terminals, both fixed and portable, through a single and flexible platform that evolves with user requirements. At last secure communications and mobility come together.

At last secure communications and mobility come together.

System overview

The Network Management System (NMS) provides the required information for any network terminal (RMT). It receives data and instructs the NMS.

The NMS also allows the network to be configured in well-defined radio (SDR) paradigm, so that it is possible to change the configuration of the modem and adapt it to applications and specific customer requirements.

The system is composed by three types of components: the Network Management System (NMS), Gateway Hub Earth Stations (GHES), and remote terminals.

The system is designed for fixed, portable or mobile remote terminals.

Remote terminals

The system provides two-way communication to terminals developed by Indra that is built around the most advanced concept of defined radio (SDR) paradigm, so that it is possible to change the configuration of the modem and adapt it to applications and specific customer requirements. Different types of terminals are available depending on the application and its technical requirements. Fixed broadband, mobile...

Product family

The system provides two-way communications to all terminals operating on demand. The system is designed for fixed, portable or mobile remote terminals.

The system allows the integration of mobile and fixed satellite communications in a single and flexible platform that evolves with user requirements.

The remote terminals are built around the most advanced concept of defined radio (SDR) paradigm, so that it is possible to change the configuration of the modem and adapt it to applications and specific customer requirements.

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The modem is designed based on the software-radio paradigm, hence different configurations can be achieved without a change of hardware. The waveform is selected through the keyboard and display.

SR40 and SR50 can work both as parts of a fully automated DAMA network (requires installation of the Network Management System) or setting up point to point links. In both scenarios, the modems can be integrated in existing PBC systems through standard SNMP IP interfaces.

The core of the modem is an advanced signal processing board based on state-of-the-art DSP and FPGA. The IF frequency at 70 MHz uses no analog mixing neither at the RX nor TX chains.

Additionally, an on-board controller and a powerful soft processor allow implementation of advanced networking and general purpose applications. SR40 and SR50 can be configured as bridge and router modes in order to provide the greatest flexibility when integrated in existing networks.

The modem offers an optional L-band interface and TCP/IP acceleration.