AYECKA
Communication Systems Ltd.

SmartLNB

Satellite Communication-based smart grid, SCADA and M2M solution for the remote monitoring and control in mission-critical applications in the energy and utility sectors

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SmartGrid

smartGrid networks are today essential part of the power utility networks, used to monitor consumption as well as productions and other parts of the networks. The monitoring and control of power grids improves reliability and efficiency, and it is mandatory for any large scale powering network. Monitoring such networks required huge number of sensors large part of are in rural locations not accessible by terrestrial communication networks. Today, these locations are served by combination of multiple technologies: Radio, Cellular, microwave and satellite, which create a complex expensive and non-reliable communication network, which is hard to maintain. The optimal solution for such cases is usually a centralized satellite star structure network, allowing direct connectivity of the remote sensors to the central command and control center, without going through multiple infrastructures, relays and other elements which reduces the reliability of the communication network.

However till recently the cost of the satellite communication remote units, as well as the cost of the maintaining the network was not efficient in terms of CAPEX and OPEX to enable that(this is stil the case today)

The latest development in satellite communications, driven by Eutelsat and developed via Ayecka significantly reduces the both the capex and opex to enable affordable and efficient solution for the utility sector.

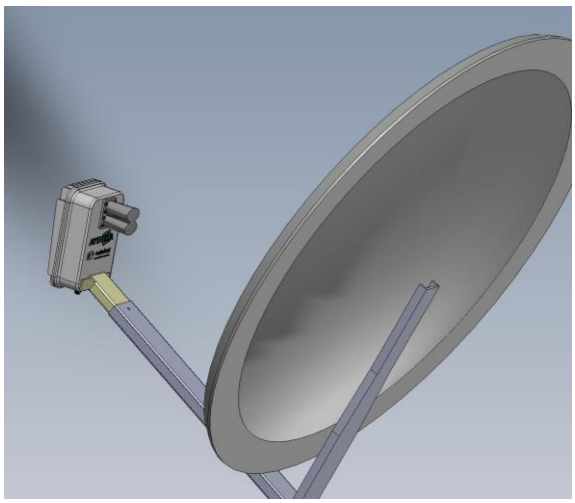
The smartLNB – Revolution of satellite communication

New technologies that emerged for satellite communications (*such as Ka band high power high capacity satellites, coupled with the mass deployment of Ku band legacy capacity*) enabled the creation of the most innovative communication system for interactive message-based, random-traffic profile applications such as

Smart Grid, M2M, SCADA, IOT (Internet of Things), and Connected-TV.

Combining the transmission in Ka band (29.5 to 30 GHz) with the reception in Ku band (10.7 to 12.75GHz) enable unique design at ultra low cost All-Outdoor End-User terminal – the smartLNB.

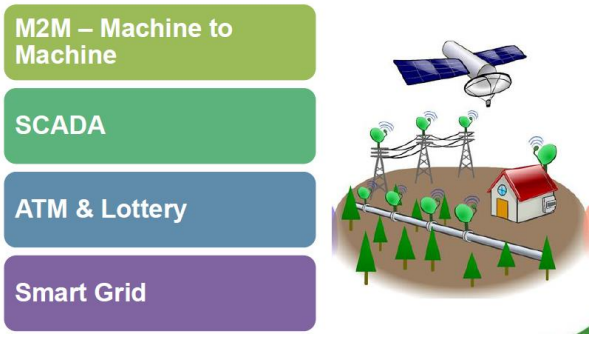
The smartLNB includes all the required functionalities to provide efficient communication channel for smart grid and similar applications.



The smartLNB is designed to be installed on a receive-only Ku band antenna just like a regular receive-only LNB. It transforms the antenna from a receive-only to a receive-transmit, while employing advanced FSIM

standard by Eutelsat with its Enhanced Spread Spectrum Aloha (ESSA) utilizing spectrum spreading to mitigate antenna inefficiencies and ensuring compliance with regulations.

smartLNB applications



SmartLNB is an ideal solution for the following applications:

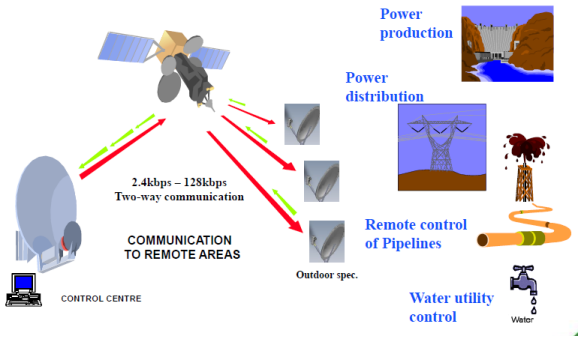
- M2M,
- SCADA,
- ATM & Lottery,
- smartGrid,

  any transaction-based application. (the above list is repeating the upper list)

smartLNB is designed to cost less in CAPEX than any other solution such as cellular, LEO satellite, or Radio communication for those

applications, and yet provides a single hop, reliable centralized solution.

smartLNB System



The smartLNB is a centralized star architecture network that connects all of the remote units directly to the central control center over a satellite link. The connection is done in a very efficient way, thus providing an excellent price per bit of information by an order of magnitude lower cost per bit than any other solution: cellular, Radio, fiber or LEO satellite.

The system provides low latency and is based on iterative successive cancellation method, overcoming collisions in the communication channel.

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smartLNB Kit

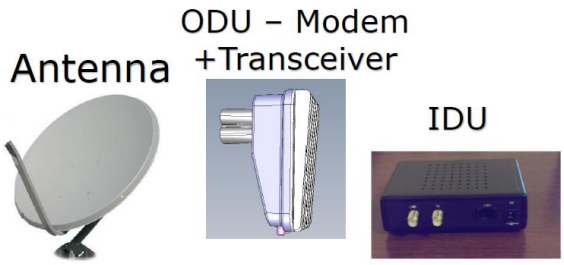
The smartLNB is designed to enable simple and fast installation and easy interface to various types of monitoring equipment.

The smartLNB supports the following physical interfaces:

- IP/Ethernet
- Serial over USB
- RS232
- RS485

smartLNB consists of the following components:

- Ku receive-only antenna (DTH type of antenna)
- smartLNB ODU
- smartLNB IDU (interfaces box)



smartLNB IDU

The smartLNB Indoor Unit (IDU) provides the following functionalities:

- Power to the ODU
- Interfaces to the monitoring equipment
- Optional Wi-Fi router
- Optional Bluetooth
- Optional Zigbee

Conclusions

The smartLNB is the next-generation equipment, system and solution for mass deployment in narrow-band network such as smart grid applications and the like.

The smartLNB for smart grid is engineered to provide years of reliable operation in remote locations and harsh environments in a manner no other competing solution can do.

It provides ultra low-cost equipment, highly efficient system, and highly reliable solution. It is easy to install, easy to maintain, and includes all the

required interfaces to the monitoring equipment.
smartLNB technology is developed by Ayecka Communication Systems LTD and is powered and backed up to Eutelsat S.A. - a French-based satellite provider of coverage over the entire European continent as well as the Middle East, Africa, India and significant parts of Asia and the Americas. It is one of the world's three leading satellite operators in terms of revenues.

Ayecka is a leading develooper and supplier of advanced satellite communication modems, systems and RFmodems, Ayecka's products are used worldwide by service providers, enterprises and consumers. Ayecka is known for its innovative products and is pioneering the IP/Satellite industry with its advanced RF modem technology powering the smartLNB