

Integrated solar-cellular-satellite management and optimisation system



The low cost cell site enabler

As Mobile Network Operators strive to increase their subscriber base they need to address the “Bottom of the Pyramid” segment of the market and extend their footprint in the remotest places. The recent technological progress in low consumption GSM radio stations and satellite terminal equipment has made it possible to use renewable energy as the only source of power supply of such sites.

The **agama**[®] integrated solar-cellular-satellite management system offered by Cell & Sat complements the solar-powered charge controller. **agama**[®] allows network operators to centrally supervise and control the solar energy supply of remote sites.

Thanks to our expertise in GSM and satellite, we have included in our software innovative features that combine real-time information gathered from the different equipment to optimize the system. This induces a five to ten times reduction in the total cost of ownership.

The Cell & Sat **agama**[®] system architecture is adaptable to any GSM radio access network providing an IP interface, whether native or in-between mediation devices.

BENEFITS

Total control

Remote monitoring and control commands allow to set-up and tune critical parameters to enhance battery life. Site and network views are available.

Reduced investment

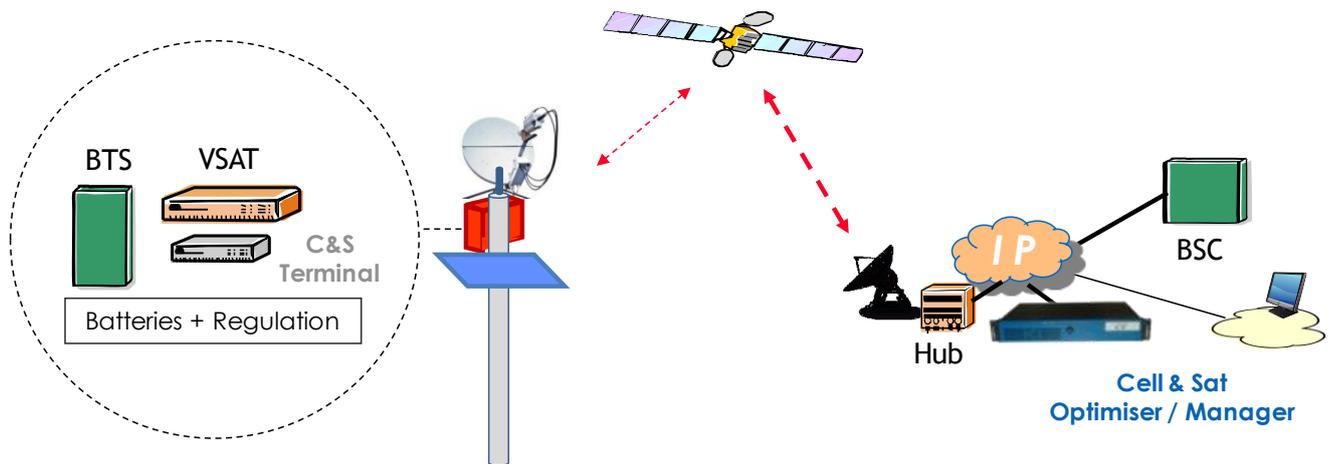
Special features based on operator’s input and GSM signalling analysis allow for alternative site design with as low as 1 or 2 solar panels.

Reduced operating costs

Real-time traffic analysis allows optimizing the costly satellite bandwidth. Long-term statistical computing provides further fine-tuning.



System architecture



The system is composed by a small embedded electronics (Cell & Sat Terminal, CST) at the site and a central server (Cell & Sat Optimiser and Manager, CSO / CSM). The CST interfaces with the solar charge controller, the BTS and the VSAT. It handles real-time traffic analysis and communicates with the CSO through a secured IP connection. The CSO/CSM hosts powerful databases for system control, optimisation of transmission resources, energy savings mechanisms and statistics.

About Cell & Sat

With a special focus on the reduction of costs to operate GSM networks in rural areas, Cell & Sat provides optimisation products and services to cellular and satellite operators willing to implement efficient terrestrial or satellite GSM backhaul. The Cell & Sat solutions benefit from the company expert knowledge in GSM 2G/3G system design, satellite networking, IP QoS optimisation, distributed protocol design, high efficiency database implementation.



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