

APPLICATION BRIEF

LTE in Satellite Communications

LTE is the technology of choice for not only commercial cellular networks, but also for private networks which have specialized requirements.

Satellite communications is one example of a private network where a variant of LTE can be used in a closed system.

In sat comms as well as any private network, LTE brings benefits through:

- Spectral efficiency
- Broadband capabilities
- All-IP network
- High data throughput
- Economies of scale

Customization

For sat comms, the network requires algorithmic and protocol adaptations to deal with a range of problems such as higher latency, specific interference or multiple parallel channels.

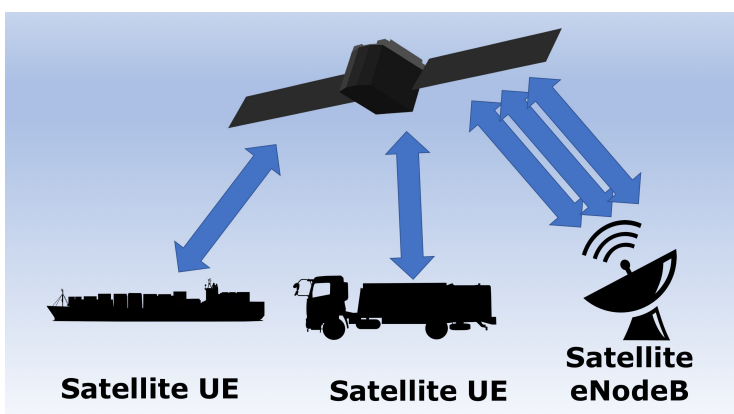
This requires in-depth knowledge of LTE and specialized expertise on extending the system beyond the LTE specification. The base components are CommAgility LTE eNodeB and UE products.



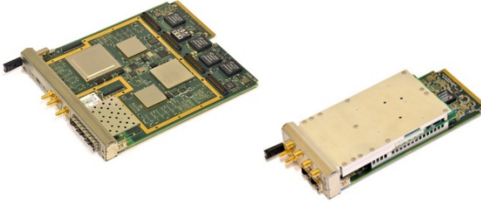
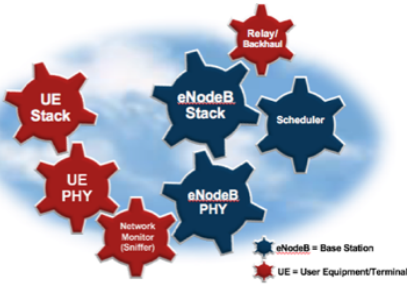
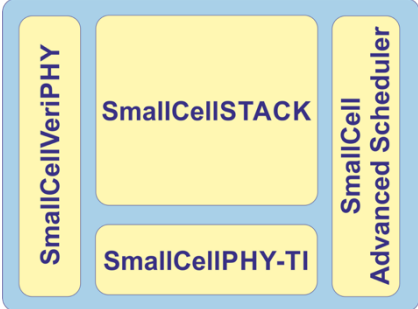

Our network customization capabilities for LTE-based satellite networks include:

- Beyond LTE specification
- Matched bandwidths and frequencies for the satellite link
- Handling of increased signal roundtrip delay time
- Multi-PHY baseband for parallel LTE channels
- eNB scheduler customization for RF calibration
- Testing solution for system integration
- Testing solution for production

We can also customize our hardware, for example ruggedized products to the MIL-E-540 and MIL-STD-461B standards have been delivered for customers.



System Capabilities

	<p>Integrated hardware and software</p> <p>CommAgility has developed a range of high performance DSP/FPGA boards, including telecom cards in the AdvancedMC form factor, enabling modular scalable platforms for bespoke solutions. We integrate these with our LTE eNodeB and UE software, to create proven system level LTE hardware and software solutions.</p>
	<p>LTE software products</p> <p>CommAgility provides 3GPP standards compliant LTE software, including</p> <ul style="list-style-type: none"> • UE and eNodeB PHY available as reference chains, providing ultimate flexibility to improve portability and scalability • Pre-ported and validated PHY and Stack, delivering an IP hardware and software block for integration into your silicon design • Pre-integrated PHY and Stack on silicon devices, for immediate use in your wireless product development • Full source code availability and design services for tailored applications
	<p>Small cell products</p> <ul style="list-style-type: none"> • Complete 3GPP Rel. 8, 9 & 10 software solution for LTE small cells using Texas Instruments' SoCs • SmallCellPHY is the foundation for small cells from top tier vendors who use Texas Instruments' SoCs • Entirely software-defined, delivering high flexibility and scalability for small cells • Basic Scheduler plus optional Advanced Scheduler • Test suite for PHY level functional, compliance and performance testing
	<p>Mobile products</p> <p>CommAgility's Mobile PHY and Stack products are the foundation for portable and scalable UE solutions.</p> <p>MobilePHY, along with the integrated MobileSTACK is supported on the TI KeyStone baseband devices with a roadmap to TCI6638 and Rel. 10. CommAgility can tailor this solution to meet application-specific needs and support for customer baseband SoCs.</p>



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