Tewkesbury Satellite Communications

Satcom System Design Consultants

System Engineering

Physical Layer

Documentation

Quality Reviews

DSP Software

Embedded Software

Modern satellite communication systems are capable of providing a wider range of services with ever-increasing functionality, data rates, mobility and security; all at lower costs than ever before. As well as the satellites themselves, these satcom systems demand increasingly complex user terminals, ground stations and test equipment. One such example is Inmarsat's BGAN system, which provides 3G services using sophisticated, high-efficiency modulation and channel-coding schemes to provide secure circuit-switched and packet-switched services at rates up to 492kBits/second.

Tewkesbury Satellite Communications (TSC) provides specialist consultancy services to designers and manufacturers of commercial and military satcom products and equipment. TSC's principal consultant has 15 years experience designing satcom products for land-portable, maritime, vehicular and aeronautical sectors.

TSC has the in-depth knowledge and technical expertise to assist its customers with all areas of satcom system design: from top-level system design to detailed software design, including physical-layer DSP software and algorithms development. We can help you at every stage of your satcom product development lifecycle: from requirements capture and system architecture, through to detailed design and implementation, and on to integration and test.

Since client confidentiality is critical to TSC's success, you can be assured that all information is handled with absolute discretion, typically under NDA. TSC also guarantees that all work undertaken is performed to the highest professional standards.
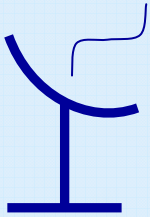
Please see overleaf for details of how TSC could help you to design and deliver your satellite communications solution or call/email us.

Phone: +44 (0)7765 552689
Email: enquiries@tewkesburysatcom.co.uk
Web: www.tewkesburysatcom.co.uk
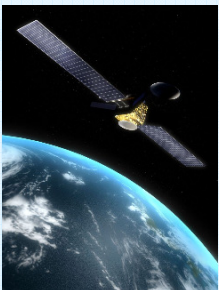
System Engineering

Examples of how TSC can help you with your satcom system architectural design:

- Functional partitioning of RF-hardware, digital hardware, firmware & software
- Design for manufacture of systems and modules
- Specification and integration of 3rd-party hardware/firmware/software modules
- System link/level budgets, EIRP control, G/T specification, antenna control

Physical Layer

TSC has specialist knowledge and experience in physical layer design for satcom systems

- DSP algorithm development & real-time implementation
- Modulation, acquisition, demodulation, channel-equalisation
- Optimal symbol-timing, amplitude, frequency and phase tracking
- FEC coding, Viterbi and Turbo decoding
- AGC, AFC, Doppler compensation, clock-steering, antenna control
- Transmitter pre-distortion & stability over frequency/temperature
- Precision time-synchronisation of transmitter/receiver

Quality Reviews

Why not draw on TSC's expertise to assist with your formal review processes. We can help at any stage, for example:

- Preliminary design review
- Critical design review
- Final design review
- Test readiness review
- Manufacturing readiness review

Documentation

TSC will produce high-quality documentation tailored to your preferred style. Example documents are:

- Requirements documents
- Architectural design documents
- Detailed design documents
- Interface control documents
- Software API documents
- Integration plans
- Test plans & test specifications

DSP & Real-time Embedded Software

We have vast experience of developing efficient, portable & well-structured code for a wide range of DSPs and embedded micros

- Software architectural design
- Fixed-point and floating-point DSP code
- Digital filters, transforms, re-sampling
- High-speed C, C++ and assembly languages
- Ultra-efficient, hand-coded assembly language modules
- Software engineering, object-oriented design & UML
- RTOS, multi-threaded and multi-processor systems
- Code profiling, analysis and optimisation