

VGSE

Versatile Ground Support Equipment
DVB-S2/RCS2 system testing in real-time



The ongoing technical evolution of satellite communication systems calls for the development of wide-band waveform/traffic generators and analyzers. These will give the players in the satellite industry the tools to quickly and reliably validate their systems.

Satellite operators are also increasingly trying to optimize their end-to-end system capabilities in terms of actual traffic, focusing on an application point of view rather than on testing the RF characteristics.

For ground segment manufacturers, new technologies like pre-distortion, equalization, and interference mitigation techniques are flourishing and need to be tested and validated under realistic conditions.

For payload and satellite integrators, the latest developments require more complex equipment on board. The appearance of high-throughput satellites means modeling and testing the ground and space segment with a large number of much wider carriers not available on today's market.

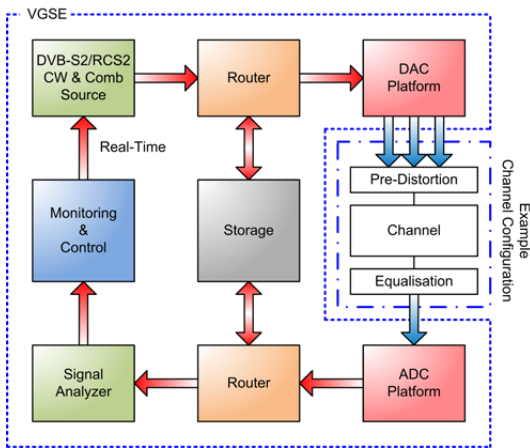
Study
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What's in it for the industry?

The final throughput of transmission channels cannot be estimated by traditional CW-based RF measurement. How does the channel cope with a fully loaded transponder? What data rate can be achieved? How to reduce integration and testing time? The VGSE challenges traditional integration and testing with a new approach.

Broadband satellite systems can be tested and optimized quickly and cost-effectively. Once a certain integration phase is achieved, it no longer makes sense to ask for RF parameters if the actual transmission is digital. VGSE substitutes traditional RF measurements by digital DVB measurements, so that final integration tests can be performed much faster than with traditional RF measurements.



The VGSE is a generic wide-band waveform and traffic generator and analyzer working in a closed-loop mode for end-to-end system validation and optimization. It supports CW, modulated-only, and DVB-S2/RCS2 carriers at bandwidths up to 500 MHz.

The signal source block enables many adjustments like pilots, frames, roll-off, and symbol rate.

The DVB-S2/RCS2 signal is degraded in the transmission channel and is continuously recorded in the ADC platform. The signal analyzer block compares generated and recorded signals in real time to judge the quality of the transmission channel, allowing pre-distortion, transponder, and equalization to be optimized in a very fast cycle.

The degradation analysis enables further transmission channel optimization. The VGSE will calculate results like I&Q constellations, error vectors, frame and bit error rate, traffic throughput, and total degradation in real time.

Monitoring and control consists of a graphical user interface and a powerful scripting engine with access to all signal and hardware resources. This enables the operator to create automated test sequences and to customize the VGSE.

Your benefits with our Versatile Ground Support Equipment "VGSE"

- Reduce time-consuming RF measurements to a minimum by integrating and validating your transmission channel using DVB-S2/RCS2 signals.
- Increased testing efficiency by real-time DVB-S2/RCS2 signal generation, analysis and looking at the bit-error rate and other performance parameters by changing the transponder setup.
- Verify transponder stability under real-life conditions. VGSE allows hundreds of DVB-S2 and RCS2 carriers loading the transponder up to a bandwidth of 500MHz.
- Increased system performance by tackling RF resource over-specification like backoff power levels, phase noise and spurious margins. Concentrate on data throughput, bit- and frame error rates instead.



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