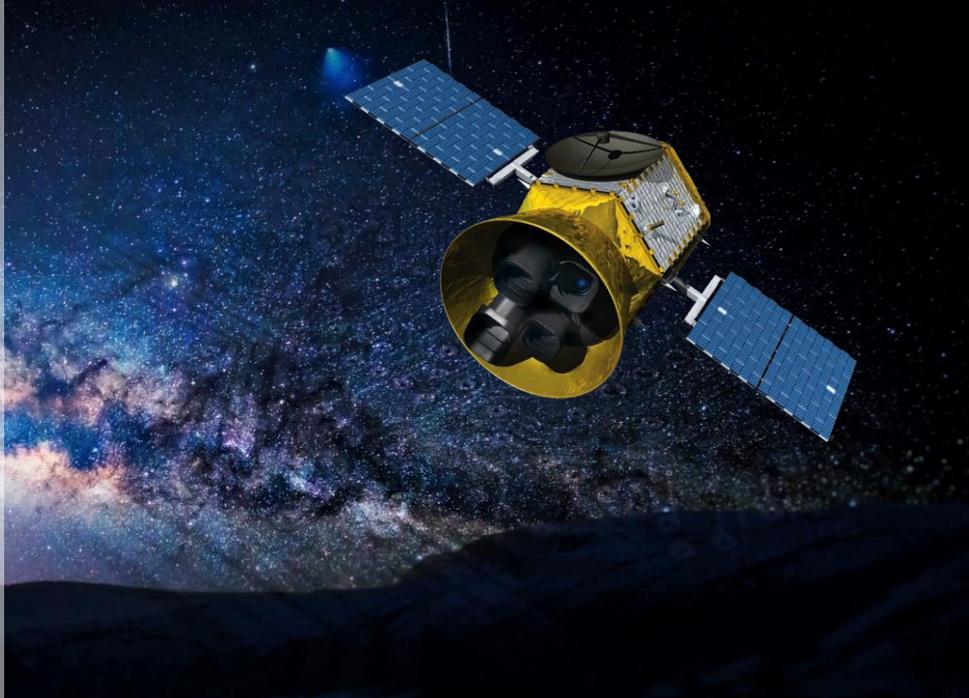


SCCC SW EGSE



CCSDS 131.2-B-1 standard is quite complex. One of the main issues while implementing a transmitter based on this standard is proving its compliance to the standard and its overall performance. This typically involves the usage of expensive hardware instrumentation, which does not allow early validation of reference mathematical models and RTL / post-layout simulations prior to the physical implementation.

The SCCC SW EGSE is a software-based Electrical Ground Support Equipment (EGSE), which allows to simulate and test the end-to-end communication chain in software, which is a much more affordable

solution with respect to hardware implementation of the receiver.

In order to test the physical implementation of the transmitter, the SCCC SW EGSE provides a hardware-in-the-loop feature, which allows to stimulate and test the hardware implementation of the transmitter. For more flexibility, the SCCC SW EGSE is available to the user both in C++ or Matlab implementation. The former maximizes the computation performance whereas the latter allows better observability of internal variables of the communication chain and therefore signal processing analysis (e.g., FFT, scatter plot, eye diagram, etc) is much more straightforward.

key features

- Fully compliant with CCSDS 131.2-B-1 standard
- Composed of a reference transmitter, channel model, receiver
- Simulates the following impairments
 - Additive White Gaussian Noise
 - Doppler effect
 - Power amplifier non-linearity
 - I/Q imbalance
 - Phase noise
- Performs end-to-end simulations
- Hardware-in-the-loop capability to test hardware implementation of the transmitter
- Available in both C++ (higher performance) and MATLAB (more user friendly) implementation
- Compatible with both Windows and Linux OS (32 bit and 64 bit architecture)
- Graphical User Interface to control the simulator and show simulation status and results

