

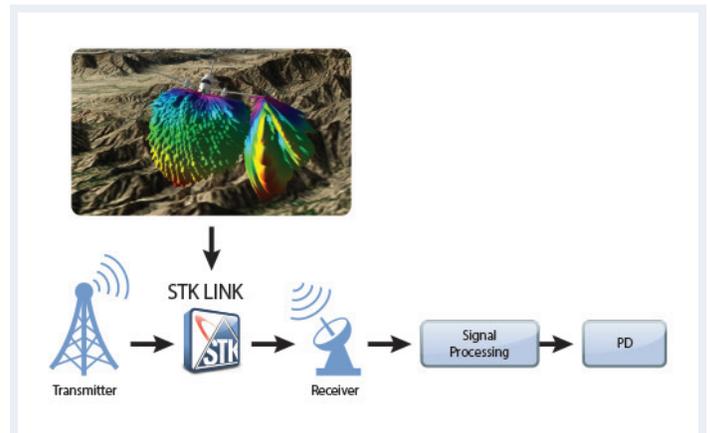
# Agilent Technologies Reduces Flight Testing with AGI

## Simulations with SystemVue and STK Improves Test Effectiveness

**THE PRE-FLIGHT BRIEF:** Extensive testing using physical aircraft is prohibitively expensive. Speed, attitude, pilot awareness, and sun angle make results from one run to the next non-repeatable—which further adds to complexity. To ensure the effective use of resources, it is essential to evaluate flight scenarios in advance of live tests. Combining AGI's Systems Tool Kit (STK) and Agilent's SystemVue software allows for repeatable virtual testing with hundreds of "what if" scenarios.

**MULTIPLE SCENARIOS FOR REPEATABLE RESULTS:** STK models aircraft profile, flight dynamics, and propagation—defining a radar/communication system-link scenario with moving transmitter, receiver, and interferer objects. It then analyzes the scenario to obtain system metrics as a function of time—including range, propagation loss, radar cross-section, noise bandwidth, and receiver signal strength. In turn, SystemVue models signal generation, Digital Signal Processing (DSP), and Radio Frequency (RF) processing while allowing system architects and algorithm developers to innovate the physical layer of wireless and aerospace/defense radar and communication systems—providing unique value to RF, DSP, and FPGA/ASIC implementers. Linking the two makes for quick, repeatable testing of multiple radar scenarios with existing or proposed components.

By linking STK from AGI with Agilent's SystemVue, engineers have saved time and money by evaluating realistic flight-testing scenarios before or instead of complicated or difficult physical flight tests.



While live flight testing of radar systems with real aircraft is extremely expensive and seldom repeatable, the combination of AGI's STK software enables repeatable testing and hundreds of "what if" scenarios. Evaluating radar acquisition, avoidance, interference and jamming in dynamic, real-world scenarios increases confidence and reduces the need for flight testing before fielding expensive hardware.

**THE BIG PICTURE:** While STK models the flight scenario, signal-path characteristics, and terrain of the mission airspace; SystemVue models all aspects of the radar system. Together, they allow users to incorporate measured data, multiple dynamic emitters, unintended interference effects, and targets into a scenario. They can also evaluate new jamming techniques or threats, and see radar-system effects on commercial wireless communication systems. With such enhanced abilities; engineers can now operate dynamically, incorporating various jamming types based on defined criteria. This allows them to model and evaluate cross-domain effects and perform repeated runs under consistent or alternating conditions.