

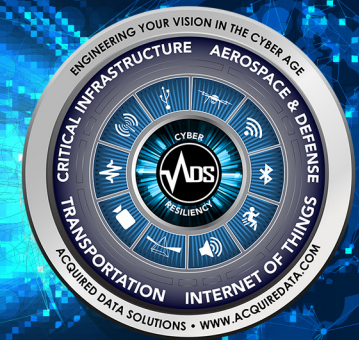
# RF Test Automation Spanning the Engineering Life Cycle

## CASE STUDY

### OVERVIEW

Acquired Data Solutions was hired by a satellite based communication technology company for automated test development spanning the entire engineering life cycle. The technology company designed a large, multi-spot beam, Ka-band satellite system that provides flexibility and support for a broad range of applications and technology advances. The technology advances include the miniaturization of electronics, solid state amplifiers, and more efficient antenna designs in order to allow for 500 GBPS throughput. Their system offers a dramatic increase in broadband Internet success and highly concentrated capacity in critical markets with a 2021 launch.

- Multi-spot Beam Ka-band Satellite.
- SSL space-proven platform.
- Efficient antenna designs allowing 500 Gbps throughput.
- SSL has patented 18 technology advances enabling it to provide highly concentrated capacity in critical areas.
- 2021 Launch.



### HOW ADS HELPED

ADS's automated test hardware and software collectively became a successful interdepartmental tool within the client's engineering life cycle.

- The **RF design engineers** use the test system to verify the board design.
- The **manufacturing operators** use the test system to validate the production.
- The **warranty technicians** use the test system to troubleshoot production failures.
- The **quality control engineers** use the data from the test fixtures to measure production statistics.

"The company's satellite will have more than 500 gigabits per second of total capacity, making it one of the highest capacity satellites under construction."  
- **President of Company**



## CHALLENGE

The technology company needed a system with test and measurement and control solutions to support the mission from engineering design verification to manufacturing quality control.

- Test technologies during design and development stage to measure data to modify the design.
- Use the same test system to support production testing to make sure the components are meeting specifications set during the design and development stage.

## SOLUTION

Systems Test Engineers from ADS were hired to develop the test automation interfacing test rack components and the propriety RF transmit boards and assembled modem chassis for data acquisition, instrumentation control, alarm generation, and quality management.

- The software incorporated NI LabVIEW 2016SP1 & LabWerx LabSSH Application for communication with the unit under test (UUT).
- Test measurements included:  
Waveform Data, Phase Noise, Spurious, Output Power, Error Vector Magnitude, Modulation Error Ratio, 3rd Order Intercept Point, Return Loss.
- Testing included output power calibration and equalizer filter calibration.
- The integrated test software ensured data storage both locally and remotely seamlessly within the client's quality management system.

## HARDWARE

- Rohde & Schwarz FSW26 Spectrum Analyzer
- Rohde & Schwarz ZNB20 Network Analyzer

## SOFTWARE

- NI LabVIEW 2016SP1
- LabWerx LabSSH Application

## RESULTS

- Smooth and successful transition of the Automated Test Fixture from design verification engineering to manufacturing to propriety quality management system.
- 2021 Launch of the Satellite.
- The satellite will have more than 500 gigabits per second of total capacity, making it one of the highest capacity satellites under construction.

