National Aeronautics and Space Administration

NASAfacts

Langley Research Antenna System (LRAS)

Providing Tracking, Command / Control, Telemetry For Aircraft, Orbital Spacecraft, And Celestial Objects

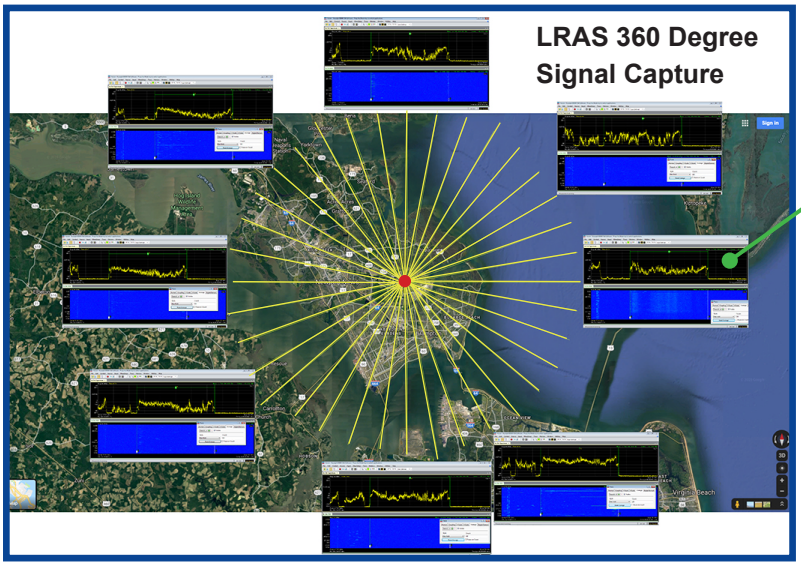
The Langley Research Center (LaRC)- LRAS S-Band and C-Band capabilities enable tracking satellites, aircraft, and unmanned aerial vehicles for telemetry data downlink and C-Band telecommand uplink. LRAS supports NASA, other federal agency, academic, and commercial partnerships.

The Langley Research Antenna System (LRAS) has the following capabilities:

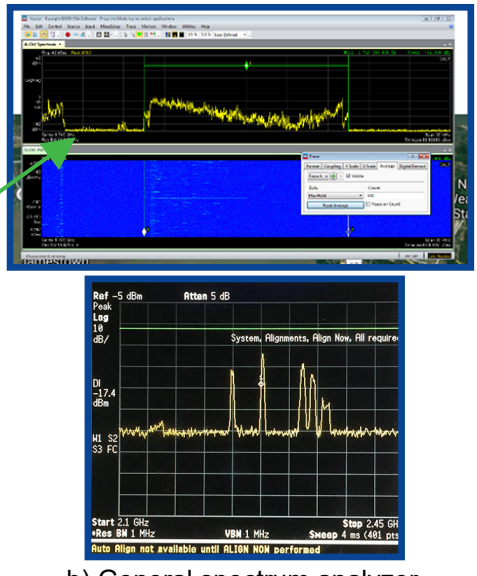
- A dual-axis, dual-drive tracking system with a 3.2-meter (10-foot) diameter reflector
- Supports simultaneous Right Hand Circular Polarization (RHCP) and Left Hand Circular Polarization (LHCP) RF signals
- Solid State Power Amplifier (SSPA) for C-Band uplink supporting command/control, video, and data
- RF-over-fiber links between LRAS and the Antenna Control Unit (ACU) in the Measurements Systems Laboratory (MSL) Building 2104
- Antenna system is environmentally protected by an 18-foot fiberglass radome
- System capable of supporting NTSC analog video and data rates up to 25Mbs

Future Upgrades Include:

- Developing pathway for Integrated Telemetry Control Hub (ITCH) located at the MSL via antenna and RF link
- Fostering ITCH to enable RF spectrum sharing experiments for UAS mobility, SmallSats/CubeSats, and expanded telemetry collaborations



a) LRAS 360 degree signal capture around Hampton Roads, VA



b) General spectrum analyzer display representation

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