

National Aeronautics and Space Administration

LYNDON B. JOHNSON SPACE CENTER
WHITE SANDS TEST FACILITY

CALIBRATION CAPABILITIES

SUMMARY

The White Sands Test Facility (WSTF) supports an extensive number of test programs, most of which are instrumented for temperature, pressure, load, acceleration, and many other measurements. The WSTF Calibration Laboratory ensures that the instruments used to make these measurements are accurate by calibrating them against recognized standards.

EQUIPMENT

The Calibration Laboratory uses two levels of standards. The first level contains high-accuracy reference standards traceable to the National Institute of Standards and Technology. Reference standards are highly stable and repeatable; for example, the measurement uncertainty of the voltage standard is less than 0.5 ppm. The second level of standards is a group of 200+ working standards. These standards are calibrated by the reference standards and are used to calibrate customer instruments in 25 major measurement disciplines. See Table 1 for details on the range in each discipline.

CAPABILITIES

The Calibration Laboratory has experience supporting NASA, other government agencies, and private industry. Current customers include Goddard Space Flight Center, the U.S. Air Force, the U.S. Army, and NASA Headquarters. Laboratory procedures meet MIL-STD-45662A requirements.

CONTACT

Clifford Madrid, NASA White Sands Test Facility, Project Manager,
clifford.d.madrid@nasa.gov, (575) 524-5732

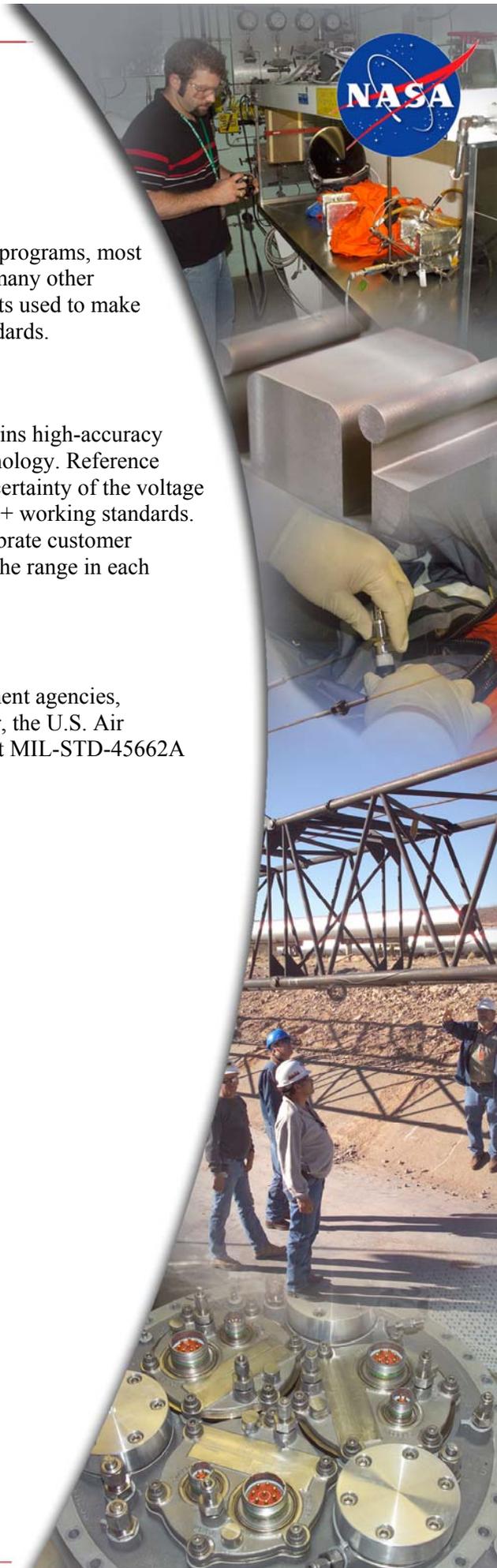




Table 1. Calibration Capabilities

Calibration Discipline	Range
Force	0 – 50,000 lbf (0 – 220 kN)
Pressure	0.05 – 30,000 psi (0.34 – 206,000 kPa)
Vacuum	Atmospheric to 10 ⁻⁷ torr (100 μPa)
Torque	3 oz-in – 21,000 lb-ft (0.02 – 2800 N·m)
Gas Flow Rate	0.0008 – 200 scfm (0.37 – 90,000 cm ³ /s)
Liquid Flow Rate	0.4 – 400 gpm (0.024 – 25 L/s)
Temperature	-197 – +500 °C
Humidity	20 – 90%
Length	0.01 – 36 in. (0.25 – 940 mm)
Flatness	Resolve down to 11 μin. (0.29 μm)
Mass	1 μg – 30 kg
Angularity	0 – 360 degrees
Voltage, DC	100 μV – 10 kV
Voltage, AC	0.1 – 1000 V at 5 – 50,000 Hz
Resistance	10 mΩ – 1GΩ
Current, DC	0 – 100 A
Current, AC	0 – 20 A at 10 – 5000 Hz
Capacitance	1nF – 1.1 μF
Inductance	0.1 nH – 1 kH
Frequency	0.01 Hz – 26.5 GHz
Phase Modulation	200 – 20,000 Hz at up to 26.5 GHz
Power	+30 – -120 dBm up to 26.5 GHz
Noise Figure	0 – 30 dB up to 18 GHz
Automatic Network Analysis	0.045 Hz – 18 GHz
Microwave Attenuation	0 – 120 dB