Statement of Work

Dimensional Metrology Service

Requesting Laboratory / Division / Group:

Communications Technology Laboratory
Radio Frequency Technology Division
Guided Wave Electromagnetics Group (672.01)

I. BACKGROUND:

The National Institute of Standards and Technology (NIST), CTL/RFT, in Boulder, CO has a requirement to produce broadband electrical calibration artifacts as part of its calibration service for scattering parameter traceability up to 250 GHz. Precision manufactured calibration artifacts are required to maintain accurate traceable calibrations for internal and external customers.

To develop electromagnetic models of traceable calibration artifacts, NIST requires dimensional measurements of the precision 0.5 mm disassembled offset short kit owned by NIST.

II. PURPOSE:

Dimensional measurements and CAD models of NIST's 0.5 mm Offset Short Calibration Standards are required. These measurements must include uncertainties that are traceable to NIST. The measurements should be returned to NIST with documentation of procedures and with accompanying CAD models.

Place of Performance:

Vendor's Facility

Regular Business Hours:

Regular business hours are Monday through Friday, 8:00 am to 5:00 pm Local Time, excluding Federal holidays and NIST closures.

Period of Performance/Delivery Date:

Base Period One-Year After Release of Order

III. SPECIFIC REQUIREMENTS:

Task 1 - Measurements

The contractor shall:

1.1 Measure the dimensions of 40 components in NIST's 0.5 mm offset short calibration kit. The components are 12 outer conductor tubes, 12 inner conductor tubes, and 16 supplemental center conductor artifacts. The manufacturer shall measure the lengths, inner and outer diameters of the devices, as well as the connector dimensions of the pin and collets. These measurements shall have documented traceability to NIST dimensional calibration services. Uncertainties for the diameter and length should be less than 10 micrometers, and uncertainties for the connectors should be less than 3 micrometers.

Task 2 - Computer-Aided Design (CAD) Model Development

The contractor shall:

2.1 Integrate dimensional measurements from different instruments to construct a CAD model of the electromagnetically relevant regions of each of the 40 components. These models should include dimensional uncertainty estimates and should be compatible with commercial finite element software.

IV. GENERAL REQUIREMENTS

Government Responsibilities:

The government will furnish the components that will be measured.

Government Furnished Property

All property, data and information provided by the Government in the performance of this task remains the property of the Government and shall be surrendered to the government upon completion or termination of this requirement. Likewise, all deliverables generated under this requirement remain the property of the Government.

The property listed in this section (below) is property that is incidental in the place of performance due to the task order requiring the contractor personnel to be located on a Government site and the property used by the Contractor within the location remains accountable to the Government. Per FAR Part 45.000(5) items considered to be incidental to the place of performance include office space, desk, chair, telephone computer and fax machine.

Item: 0.5 mm Offset Short Calibration Kit
Model Number:
Serial Number(s):

Incidental Property Provided:

- Office Space
- Desk
- Chair
- Telephone
- Printer/Copy/Fax Machine

Upon award of this requirement, the Government will provide the Contractor with all access to all equipment and resources needed in the performance of this requirement.

Inspection and Acceptance

In addition to the inspection and acceptance terms articulated in the specific FAR clause that allows the Government reserves the right to perform such performance tests and evaluations as defined below to verify specified system performance. Such tests and evaluations, if performed, shall be conducted within the environment that the system is to be operated. The Contractor has the right to be present during the tests and evaluations, if performed, at the Contractor's expense.

Performance Tests:

Test	Description	Standard
1	Importing CAD Files	Must import successfully into finite element software used by NIST

2	Uncertainty Documentation	NIST must evaluate and approve the uncertainty and traceability approach employed by the contractor

NIST may choose at its discretion to forego this part of acceptance testing.

A visual inspection of the equipment will be performed by the NIST POC to identify surface defects or any form of indication that any equipment was damaged during transport to NIST. The Government shall have sole discretion to require repair or replacement of damaged and/or nonconforming supplies at no cost to the Government. The Government at any time prior to acceptance shall reject the equipment due to defects and/or nonconformance. The vendor is responsible for latent defects discovered any time after final inspection. However, the extent of its liability shall be prorated over the useful life of the equipment.

Ownership of the equipment shall transfer to NIST upon acceptance by the Government.

The Government will test, inspect, and accept or reject the equipment within 30 days of the receipt of the equipment unless otherwise indicated above. The Government reserves the right to conduct quality assurance testing to confirm that a given instrument(s) meets the manufacturer's and/or the Government's performance specifications. It is anticipated that the equipment will meet all manufacturer's specifications and/or the Government's performance specifications identified in the most recent operations and maintenance manual for each piece of equipment and/or in this document.

V. Schedule of Deliverables:

Deliverable	Description	Format	Due Date	Quantity
1	Dimensional measurements	Documents and CAD files	60 days ARO	1
2	Documentation of methodology and uncertainties	DOCX	60 days ARO	1

ARO: After Release of Order (Award Date)

Standards of Acceptance:

The NIST Point of Contact (POC) shall review all the above deliverables and respond with an acceptance or request for revision email to the Contractor POC within 30 days of receipt of deliverable. This section applies to deliverables which must be reviewed and approved for acceptances (e.g., draft plans, drawings, etc.)