Requirements / Specification Document

National Institute of Standards and Technology
U.S. Department of Commerce

TITLE: 0.5 mm Offset Short Primary Calibration Kit

Requesting Laboratory / Division / Group:

Communications Technology Laboratory
Radio Frequency Technology Division
Guided Wave Electromagnetics Group (672.03)

General Statement of Need:

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 from dc up to 250 GHz. Precision manufactured calibration artifacts are required to maintain accurate traceable calibrations for internal and external customers.

To achieve traceability for microwave frequencies, a series of offset short devices will need to be provided in a disassembled state so that dimensional metrology staff at NIST can measure them. Then the parts will need to be re-assembled to complete the microwave verification kit.

Item Specifications and Quantities:

Item 1:	Precision Offset Short Calibration Kit in 0.5 mm Connector Type	
Quantity:	1 EACH	
Specifications:	1.1	Disassembled
	1.2	Shall contain at least six offset short calibration artifacts of each connector sex (12 total: 6 male and 6 female).
	1.3	Manufactured with metrology grade dimensional specifications.
	1.4	Offset short lengths shall be designed such that the kit performs calibrations in the range of 30 GHz to 260 GHz.
	1.5	Measured mechanical data with k=2 uncertainties
Item 2:	Assembly of Offset Short Components	
Quantity:	1 JOB	
Specifications:	2.1	Assembly of the offset short components (Item 1).
	2.2	Assembly process will occur after NIST performs dimensional metrology on the components.
Item 3:	Precision Short Open Load Kit	

Quantity:	1 KIT	
Specifications:	3.1	Lowband load - male 0.5 mm
	3.2	Lowband load - female 0.5 mm
	3.3	Offset open - male 0.5 mm
	3.4	Offset open - female 0.5 mm
	3.5	Offset short - male 0.5 mm
	3.6	Offset short - female 0.5 mm
	3.7	Components shall be fabricated as metrology grade components. In addition, the
	3.8	Kit shall contain relevant torque wrenches
Item 4:	Spare Components for Dimensioning	
Quantity:	1 SET	
Specifications:	4.1	0.5 mm connector type
	4.2	Pre-slotted female center conductor
	4.3	Slotted and plated but not heat-treated/formed
	4.4	Spare male center conductors
	4.5	Spare female center conductors
Item 5:	Test Port Adapters in 0.5 mm	
Quantity:	1 SET	
Specifications:	5.1	Assembled test ports (1 male, 1 female).
	5.2	Metrology grade

Vendor Requirements

1. Possess at time of award/contracting an Export Control Classification Number (ECCN).

2. Possess at time of award/contracting a Unique Entity Identification Number (UEI) which registration is listed as “Active” on the GSA System for Award Management (SAM.gov).

Procurement Support Information and Ancillary Services:

[Provide input for each section Below or Mark Not Applicable (N/A)]

Section		Requirements/Specifications
Planning Considerations	☐	List any visits required to allow potential vendors to see site specific constraints.

☐ N/A	[Explain Requirements.] ☐ US citizen required on-site (foreign nationals require pre-registration 30 days prior to visit.) ☐ Vendor Representative On-Site more than three (3) days. ☒ Other Considerations: This procurement has three stages: 1) manufacturing, 2) dimensioning at NIST, and 3) assembly of parts. Since step 2 depends on NIST timelines outside of the vendor's control, the vendor timelines should be considered separately, and there should be partial payment and partial delivery.
Shipping & Delivery ☐ N/A	Shipping Address: ☒ NIST-Boulder ATTN: Angela Stelson Mail Stop: 672.01 325 Broadway Boulder, CO 80305 ☐ NIST-Gaithersburg ATTN: Mail Stop: 100 Bureau Dr Gaithersburg MD 20899 ☐ [Alternate Shipping Address] Shipping Criteria: ☒ Partial Delivery Acceptable ☒ Item 1 should be delivered independently of items 3-5. Item 2 depends on return of Item 1 from NIST to vendor for assembly. Item 2 and assembled Item 1 delivered within 10 weeks after receiving them back from NIST ☐ Direct Delivery to OU Building Required [Explain Need for Requirement] Building /Room Number: [Enter Building/Room Number] ☐ Building has Loading Dock

Containerization Preference: [Enter Container Type]

Other Requirements:

[List Any Other Requirement]

Delivery Date Criteria:

☐ Delivery Shall Be Competed No Later Than:
Click or tap to enter a date.

☐ Delivery Shall Be Made No Earlier Than:
Click or tap to enter a date.

☐ Scheduled Deliveries:

Item Number	Due Date

☐ Other:

[List Other Shipping, Delivery or Special Requirements.]

Electronic Media

☒ N/A

[Enter Electronic Media Requirements by Item.]

☐ Software

☐ Electronic Manuals

☐ License Key

☐ Other:

[List Any Other Electronic Media Requirements]

☐ US Government Email Address for Software Delivery:

[Enter Address]

Installation

☒ N/A

[Enter Installation Requirements by Item]

☐ Vendor Technician on Site

☐ Rigging

☐ Uncrating / Unpackaging

☐ Removal of Packaging Material

☐ Equipment Set Up

☐ Start-Up Services

☐ Turnkey Installation

☐ Other:

[Enter Details]

NOTE: TPOC shall be the coordination POC.

Facility / Utility Considerations

☒ N/A

[List Site Specific Utility Considerations by Item]

☐ OFPM Work Order Numbers

[List Work Order Numbers]

☐ Power Available

Voltage: [Enter voltage] (V)

Maximum Current: [Enter max current draw] (A)

Phase: [Choose Phase]

Frequency: [Typically 60Hz] (Hz)

NEMA Plug Type: [Enter Plug Type] (i.e.: NEMA L5-20P)

Environment: [Choose Environment]

Other Power Considerations:

[List Any Other Power Considerations.]

☐ Utility Connections:

[List Relevant Available Utilities, Pressure(s) and Flowrate(s).]

☐ Other Considerations:

[List Other Considerations to Ensure an Accurate Quote.]

Inspection and Acceptance

☐ N/A

[Inspection Requirements Per Item (Who, When, What, Where)]

☒ On-Site

☐ Acceptance Not Expected to Exceed 7 Business Days

☒ Acceptance Expected to Exceed 7 Business Days:

60 days

☐ Inspection and Acceptance Plan:

[Explanation]

☐ Other:

[Enter Other Requirements]

Training

☒ N/A

Training Requirements (Who, When, What, Where)

☐ Number of Trainees: [Enter Number of Trainees]

☐ On-Site

☐ Off-Site Location: [Enter Location(s)]

Is Trainee Travel Required: [Choose Answer]

Scope of Training

☐ Operation ☐ Maintenance ☐ Troubleshooting

☐ Safety ☐ Other

[Enter Other Scope of Training Requirements]

☐ Training Materials to be Provided by Government:

[Describe Materials]

☐ Training Materials to be Provided by Vendor:

[Describe Materials]

☐ Other

[Enter Other Training Requirements]

NOTE: SME shall be coordination POC.

Warranty

☐ N/A

Base Manufacturer Warranty is acceptable

Warranty Length: [i.e. 3 - Years]

What is included?

☐ Labor ☐ Parts ☐ Travel

☐ Cost and Liability for Returns

☐ Other

[Enter Other Requirements]

☐ 1 Option Period

☐ 2 Option Periods

☐ 3 Option Periods

☐ 4 Option Periods (Maximum)

Calibration ☒ N/A	[Describe Calibration Requirements Per Item] Calibration Plan Length: [i.e. 3 - Years] What is Included? ☐ Labor ☐ Spare Parts ☐ Consumables ☐ Travel ☐ Cost and Liability for Shipment ☐ Software Updates ☐ Manuals ☐ Other [Enter Other Requirements] ☐ Requirements: [Enter Requirements] (i.e.: On-Site Within 72 hours, etc.) ☐ 1 Option Period Length: [i.e. 1 – Year / 6 - Months] ☐ 2 Option Periods ☐ 3 Option Periods ☐ 4 Option Periods (Maximum)
Maintenance ☒ N/A	[Describe Maintenance Requirements Per Item] Maintenance Plan Length: [i.e. 3 - Years] What is Included? ☐ Labor ☐ Spare Parts ☐ Consumables ☐ Travel ☐ Cost and Liability for Shipment ☐ Software Updates ☐ Manuals ☐ Other [Enter Other Requirements] ☐ Requirements: [Enter Requirements] (i.e.: On-Site Within 72 hours, etc.) ☐ 1 Option Period Length: [i.e. 1 – Year / 6 - Months] ☐ 2 Option Periods ☐ 3 Option Periods ☐ 4 Option Periods (Maximum)
Government	List Any Government Furnished Material / Equipment Per Item]

Furnished Material / Equipment ☐ N/A	☐ Samples for Testing ☐ Equipment which will leave Government Site Description: [Enter Description] Serial Number: [Enter Serial Number] NIST Property Number: [Enter NIST Property Number] ☒ Other: NIST shall provide dimensional metrology for Item 1 before returning to vendor for assembly (Item 2)
Travel ☒ N/A	[Describe any Travel Requirements Per Item] ☐ Explain: [Enter Justification / Requirement] ☐ Other: [Enter Other Requirements] NOTE TO VENDOR: To the maximum extent possible, include travel requirement estimates as part of pertinent sections above (Installation, Maintenance, Repair, etc.). Otherwise, Travel will be a separate line item, reimbursable per the Federal Travel Regulation.