

TITLE: 110 GHz Vector Network Analyzer

Requesting Laboratory / Division / Group:

Communications Technology Laboratory
 Radio Frequency Technology Division
 Radio Frequency Electronics Group 672.01

General Statement of Need:

NIST is developing a millimeter-wave standard reference material. To deliver this new standard, NIST must measure the scattering (S-) parameters of cavity resonators from 1 GHz up to 110 GHz. NIST must measure 4 different types of resonators: split post dielectric resonators, split cylinder resonators, Fabry Perot open resonators, and balanced circular disk resonators. The split cylinder resonators, Fabry Perot open resonators, and balanced circular disk resonators require proprietary software by Keysight.

Items and Ancillary Services:

Item 1:	110 GHz Vector Network Analyzer
Quantity:	1
Specifications:	1.1 All necessary power cables for installation 1.2 All necessary connectors for installation 1.3 Rackmount kit with handles for installation 1.4 Low frequency limit of 1 kHz 1.5 High frequency limit without extender heads 67 GHz 1.6 High frequency limit with extender heads 110 GHz 1.7 Maximum power output at 67 GHz must be greater than 0 dBm 1.8 Minimum IF bandwidth 10 Hz 1.9 Maximum IF bandwidth 1 kHz 1.10 4 ports cable of measuring a-waves and b-waves simultaneously and independently 1.11 Dual sources cables of delivering 0 dBm at all ports at all frequencies 1.12 1.85 mm NMD connectors on each port 1.13 Front end access jumpers 1.14 Ability to drive 3 rd party extender heads 1.15 Direct IF access 1.16 Embedded LO, frequency-offset options 1.17 An internal combiner to route two or more sources to a single port 1.18 Rear access loops to combiners to allow external sources and external filters 1.19 Internal bias tees 1.20 Demonstrated measurement capabilities with N1501AE11/67 Balanced Type Circular Disk Resonator (BCDR) and Resonant Cavity Method – Option 007 for N1501AKEAD710/20/24/28/35/40/50/60/80

Service Requirements / Item Specifications:

Section	Requirements/Specifications
Planning Considerations <input checked="" type="checkbox"/> N/A	<input type="checkbox"/> List any visits required to allow potential vendors to see site specific constraints. [Explain Requirements.] <input type="checkbox"/> US citizen required on-site (foreign nationals require pre-registration 30 days prior to visit.) <input type="checkbox"/> Vendor Representative On-Site more than three (3) days. <input type="checkbox"/> Other Considerations: [List other considerations to ensure an accurate quote.]
Shipping & Delivery <input type="checkbox"/> N/A	Shipping Address: <input checked="" type="checkbox"/> NIST-Boulder 325 Broadway Boulder, CO 80305 <input type="checkbox"/> [Alternate Shipping Address] Shipping Criteria: <input type="checkbox"/> Partial Delivery Acceptable <input type="checkbox"/> [Enter Shipping and Delivery information by item.] <input checked="" type="checkbox"/> Direct Delivery to Building Required Installation of system in Building 81 required <input type="checkbox"/> Building has Loading Dock Containerization Preference: [Enter Container Type] Other Requirements: [List Any Other Requirement] Delivery Date Criteria: <input checked="" type="checkbox"/> Delivery of Goods, Installation, and Training shall be competed no later than: 11/30/2023 <input type="checkbox"/> Delivery No Earlier Than: Click or tap to enter a date. <input type="checkbox"/> Other: [List Other Shipping, Delivery or Special Requirements.]
Electronic Media <input type="checkbox"/> N/A	[Enter Electronic Media Requirements by Item.] <input checked="" type="checkbox"/> Software <input type="checkbox"/> Electronic Manuals

Requirements / Specification Document

License Key
 Other:
[List Any Other Electronic Media Requirements]
 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:
When installation is required, TPOC shall be the coordination point.

Facility / Utility Considerations
 N/A
[List Site Specific Utility Considerations by Item]
 OFPM Work Order Numbers
[List Work Order Numbers]
 Power Available
Voltage: 120 (V)
Maximum Current: 20 (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:
Air drop
 Other Considerations:
[List Other Considerations to Ensure an Accurate Quote.]

Warranty
 N/A
Base Manufacturer Warranty is acceptable
 Warranty Length: 1 Year
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: 1-Year
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)

Training
 N/A
 On-Site
Is Travel Required: NO
 Off-Site Location: [Enter Location(s)]
 Number of Trainees: 3
Scope of Training
 Operations Maintenance Troubleshooting Safety
 Other
Alignment and calibration of stage and interferometers
 Training materials to be provided:
 Other
NOTE: When training is required, TPOC shall be coordinator.

Inspection and Acceptance
 On-Site

Requirements / Specification Document

N/A

[Inspection Requirements Per Item]

- Government Acceptance Expected to Not to Exceed 7 Business Days
- Government Acceptance Expected to Exceed 7 Business Days
30 Days
- Inspection and Acceptance Plan:
[Explanation]
- Other:
[Enter Other Requirements]

Maintenance

[Describe Maintenance Requirements Per Item]

N/A

Service Plan Length: 1-Year

What is Included?

- Labor Spare Parts Consumables Travel
- Cost and Liability for Returns Software Updates
- Manuals I
- Other
[Enter Other Requirements]
- Requirements:**
[Enter Requirements] (i.e.: On-Site Within 72 hours, etc.)
- 1 Option Period (Base + One)
- 2 Option Periods (Base + Two)
- 3 Option Periods (Base + Three)
- 4 Option Periods (Base + Four)

Government
Furnished
Material /
Equipment

N/A

[List Any Government Furnished Material / Equipment Per Item]

- Samples for Testing
- Government Equipment which will leave Government Site
(TPOC must coordinate with Division Property Custodian)
Description: [Enter Description]
Serial Number: [Enter Serial Number]
NIST Property Number: [Enter NIST Property Number]
- Other:
[Enter Other Details]

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.