Requirements / Specification Document

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

TITLE: Phase Noise Analyzer

Requesting Laboratory / Division / Group:

Communications Technology Laboratory
Radio Frequency Technology Division
High-Speed Waveform Metrology Group (672.03)

General Statement of Need:

The National Institute of Standards and Technology (NIST)/Communications Technology Laboratory (CTL) needs to measure ultralow phase noise and Allan deviation of precision RF sources. A phase noise analyzer with ultralow residual noise is essential for this need.

Item Specifications and Quantities:

Item 1:	Phase Noise Analyzer	
Quantity:	1	
Specifications:	1.1	4 signal inputs (up to 2 signal and 2 reference)
	1.2	Input frequency range from 1 MHz to 100 MHz or greater
	1.3	Max measurable frequency offset from carrier of 10 MHz or greater
	1.4	Support for different signal and reference frequencies
	1.5	Support for phase and amplitude noise versus frequency with residual white noise floor -175 dBc/Hz or lower
	1.6	Support for Allan deviation measurement with 10^-16 / sqrt(tau) noise floor or lower
	1.7	Support for phase and frequency streaming output with up to 10 Hz or greater bandwidth
	1.8	Ethernet interface with API for computer control and data streaming
	1.9	Fully enclosed benchtop instrument

[List any additional item(s) or service requirements using the same format.]

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:

Section	Requirements/Specifications
Planning Considerations ☒ N/A	☐ List any visits required to allow potential vendors to see site specific constraints. [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: [List other considerations to ensure an accurate quote.]
Shipping & Delivery ☐ N/A	Shipping Address: ☒ NIST-Boulder ATTN: TBA Mail Stop: TBA 325 Broadway Boulder, CO 80305 ☐ NIST-Gaithersburg ATTN: Mail Stop: 100 Bureau Dr Gaithersburg MD 20899 ☐ [Alternate Shipping Address] Shipping Criteria: ☐ Partial Delivery Acceptable ☐ [Enter Shipping and Delivery information by item.] ☐ 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: 30 APR 27 ☐ 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:
[Duration]
☐ 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 Furnished Material / Equipment ☒ N/A	List Any Government Furnished Material / Equipment Per Item] ☐ 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: [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.