Requirements / Specification Document

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

TITLE: Infrared Camera

Requesting Laboratory / Division / Group:

Communications Technology Laboratory
Radio Frequency Technology Division
RFTD HQ Group (672.00)

General Statement of Need:

The National Institute of Standards and Technology (NIST)/Communications Technology Laboratory (CTL) needs a camera for inspection of semiconductor wafers during high frequency RF probing and optical illumination with 1550 nm light. The camera must have sensitivity from visible (400 nm) to near-infrared (1700 nm) wavelengths, high resolution, and high frame rate.

Item Specifications and Quantities:

Item 1:	High Resolution Near-Infrared Camera	
Quantity:	1 EACH	
Specifications:	1.1	2D area sensing with 2560 x 2048 effective pixel resolution or greater
	1.2	60 frame/second or greater full resolution frame rate (8-bit or higher pixel data)
	1.3	Camera quantum efficiency (excluding user lens or filters) greater than 30% from 400 nm to 1600 nm
	1.4	Up to 12-bit or greater analog to digital conversion with Mono 8-bit and 12-bit readout
	1.5	1” (16 mm diagonal) or smaller effective sensor area
	1.6	Pixel region of interest, offset, binning, nonuniformity correction, and defective pixel correction built into camera firmware
	1.7	Global shutter with internally timed exposures from 25 microseconds to 2 seconds
	1.8	Software-selectable free-running or external frame triggering (via TTL signal on SMA, Hirose, or M connector on camera body)
	1.9	Triggering of external light source via connector on camera body

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1.10	TEC-cooled sensor with software-selectable temperature setpoint
1.11	USB3 or GigE computer interface
1.12	C-mount for lens attachment
1.13	Metal camera body with 100x100x100 mm maximum dimensions and ¼-20 mounting hole
1.14	Software for live image visualization included
1.15	DC power supply, compatible with US AC wall voltage, included if necessary for camera operation

[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:

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

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: Ladan Arissian Mail Stop: 672.00 325 Broadway Boulder, CO 80305

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☐ 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:
4/30/2027

☐ 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

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☐ 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.]

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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.

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Warranty ☐ N/A	Base Manufacturer Warranty is acceptable Warranty Length: 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

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	☐ 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.

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