



DEPARTMENT OF THE NAVY
NAVAL SURFACE WARFARE CENTER
CARDEROCK DIVISION

NAVAL SHIP SYSTEMS
ENGINEERING STATION
5001 S BROAD STREET
PHILADELPHIA, PA 19112-1403

IN REPLY REFER TO

J&A Number: 4210-13-003-00

██████████
P.R. Number: 13-CJM-030

**JUSTIFICATION AND APPROVAL
FOR USE OF OTHER THAN FULL AND OPEN COMPETITION**

JUSTIFICATION

1. Contracting Activity

Naval Sea Systems Command, Naval Surface Warfare Center Carderock Division ██████████

2. Description of the Action Being Approved

This is a sole source procurement action to be awarded without providing for full and open competition. The proposed action is for a new Firm Fixed Price (FFP) supply contract to be awarded to Polytec, Inc., 16400 Bake Parkway, Suite 150 & 200, Irvine, CA 92618.

3. Description of Supplies/Services

NSWCCD-SSES ██████████ currently has a need for a Polytec Scanning Laser Doppler Vibrometer (SLDV) to support the Electric Drive Test Facility (EDTF) program with the unique need of capturing Very High Frequency (VHF) Structureborne Noise (SBN) data. The Government's minimum needs have been verified by the certifying technical and requirements personnel.

The total estimated dollar value of this requirement is \$296,585.00 (Including proposed trade-in of the existing obsolete NSWCCD SLDV). RDT&E funds will be used for this acquisition.

4. Statutory Authority Permitting Other Than Full and Open Competition.

10 U.S.C. 2304(c)(1): Only One Responsible Source and No Other Supplies or Services Will Satisfy Agency Requirements (Ref: FAR 6.302-1).

5. Rationale Justifying Use of Cited Statutory Authority

Laser vibrometers are Commercial Off the Shelf (COTS) items, the designs for which are continuously updated as technology advances. It is not in the best interest of the Government to obtain a data package, nor is one available for purchase.

The previous SLDV was purchased in 1998 for \$178,599. This system was originally purchased to support Electric Drive Programs with the unique need of capturing Very High Frequency (VHF) Structureborne Noise (SBN) data. This unit is now 14 years old and has an obsolete Windows NT operating system functioning on obsolete IT hardware that is not compatible with current RDT&E computer security requirements.

The previous generation sensor technology is also outdated and not upgradeable without a full system refresh. Although the legacy SLDV is still minimally operational, advances in the sensor technology have resulted in an order of magnitude improvement in the sensitivity and noise floor of the new systems. This added capability is very important for characterizing VHF noise issues on equipment intended for low noise critical operation.

This current technical refresh of the NSWCCD-SSES SLDV is now being driven by Electric Drive Test Facility (EDTF) requirements which again exceed the capability of conventional SBN measurement technologies. Assuming a similar useful life as the original SLDV, the technical refresh of this equipment should extend NSWCCD-SSES Scanning Laser Doppler Vibrometry capability through the scheduled life of the EDTF program. Since the unit will not be utilized on a full time basis at EDTF, the system will also continue to be available for other NSWCCD programs.

The following are the specifications and requirements necessary to meet the current EDTF needs:

1. Must have the capability of scanning an array of measurement locations automatically capturing high frequency structureborne noise data without repositioning the optical head.
2. Must be capable of measuring structureborne noise to 80 kHz.
3. Must provide measurement resolution down to $0.03\mu\text{m/s}/\sqrt{\text{Hz}}$ at 80 kHz.
4. Measurement locations must be capable of being setup remotely using integrated high definition video imaging with identical optical paths as the measurement laser beam.
5. The system must be capable of presenting measured point-to-point Fast Fourier Transform (FFT) data with further post processing for presentation of scanned surface animations.
6. The measurement laser must be eye-safe, such as Class 2 visible laser, since it will be operated in an open laboratory test environment.
7. The system must be capable of measuring from a distance of at least 10 meters.

Polytec currently offers the only Scanning Laser Doppler Vibrometer (SLDV) that meets all of the above requirements. The closest competing products currently available are offered by [REDACTED] and [REDACTED]. The [REDACTED] Scanning Laser Vibrometer, previously marketed by [REDACTED], is no longer available. [REDACTED]

based in Madrid, offered a Scanning Laser Doppler Vibrometer with a 40 kHz capability, but this item has been discontinued from their product line.

██████████ offers a high frequency non-scanning LDV, but this component has much less functionality due to the need to manually position the optical head for each measurement location and the need to manually import measured data to third party software for analysis and animation. The need to remotely conduct measurements at EDTF makes a manually operated system incompatible with the expected manning prohibitions in spaces with equipment under test.

██████████ offers a Scanning Laser Doppler Vibrometer, but the demonstrable COTS SLDV product line is not capable of measuring to 80 kHz as required. Their product line uses a non eye-safe Class IIb laser and would be non-compatible with an open laboratory environment as required. The stated 5 um/sec measurement velocity range of the VibroMet™ 500 is not sufficient to meet the $0.03\mu\text{m/s}/\sqrt{\text{Hz}}$ requirement. (The VibroMet™ 500 specifications are only listed to 20 kHz). The system is only capable of measuring to 5 meters rather than the minimum requirement of 10 meters.

Polytec offers the only known commercially available product line available to fulfill the requirement for a Scanning Laser Doppler Vibrometer system with integrated control and analysis and the capability of measuring SBN to 80 kHz. NSWCCD currently has an obsolete Polytec Scanning Laser Doppler Vibrometer.

6. Description of Efforts Made to Solicit Offers from as Many Sources as Practicable

The proposed modification was synopsised on the Federal Business Opportunities (FedBizOpps) website on 23 January 2013 in accordance with FAR 5.201, and no responses were received. Any future responses obtained will be evaluated.

Market Research was conducted by identifying and contacting any possible suppliers of a Scanning Laser Doppler Vibrometer. Polytec, Inc. ██████████ and ██████████ were identified as possible suppliers. ██████████ was purchased by Polytec, Inc. and no longer independently markets SLDVs. The ██████████ SLDV was based on a collaboration with ██████████, but they no longer offer this product since ██████████ was purchased by Polytec. The ██████████ SLDV does not have the required high frequency capability (only 20 kHz vs. the required 80 kHz). The ██████████ Laser Doppler Vibrometer does not have a scanning capability, and is therefore incompatible with EDTF requirements. ██████████ has dropped their Scanning Laser Doppler Vibrometer from their product line.

Due to these circumstances, there are no other viable offerors with a product that will meet the Government's requirements.

7. Determination of Fair and Reasonable Costs

The Contracting Officer will determine that the anticipated costs to the Government for the supplies/services covered by this J&A will be fair and reasonable.

8. Actions to Remove Barriers to Competition

The Naval Surface Warfare Center Carderock Division will continue to monitor current market conditions to determine if any other additional sources become available for these items. If any other sources emerge, the Navy would conduct competition for these items in the future.

TECHNICAL AND REQUIREMENTS CERTIFICATION - FAR 6.303-2(b):

I certify that the facts and representations under my cognizance, that are included in this justification and its supporting data, except as noted herein, are complete and accurate to the best of my knowledge and belief.

COMBINED TECHNICAL AND REQUIREMENTS COGNIZANCE:

Signature Technical POC Phone No. Date 1/28/2013

LEGAL SUFFICIENCY REVIEW (NMCARS 5206.303(90)):

I have determined that this justification is legally sufficient.

Signature Office of Counsel Phone No. Date 9/8/13

CONTRACTING OFFICER CERTIFICATION - FAR 6.303-2(a)(12) (Note: Pursuant to FAR 6.304(a)(1)), this certification also serves as approval of J&A's not exceeding \$550,000)

I certify that this justification is accurate and complete to the best of my knowledge and belief.

Signature *[Signature]* John Stefano Phone No. Date 01/28/13
Contracting Officer (Code 4210)