



66 -- Hydrophones

General Information

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Contracting Office Address

Department of the Navy, Office of Naval Research, Naval Research Laboratory, 4555 Overlook Ave. S.W., Washington, DC, 20375

Description

This is a combined synopsis/solicitation for commercial items prepared in accordance with the format in Federal Acquisition Regulations (FAR) Subpart 12.6, as supplemented with additional information included in this notice. This announcement constitutes the only solicitation; proposals are being requested and a written solicitation will not be issued. The solicitation, N00173-06-R-DB04, is issued as a Request for Proposal (RFP). The solicitation document and incorporated provisions and clauses are those in effect through FAC 2005-08 and DFARS Change Notice 20060223. The associated small business size standard is 334511 and 750 employees.

Specifications: CLIN 0001: Quantity of 64 omni-directional hydrophones that are to be used as receiver elements in a 2-dimensional underwater acoustic array (Billboard Array). The goal is to obtain hydrophones that are nearly identical in performance, and that achieve a minimum sensitivity, bandwidth, and omni-directionality. A secondary but still very important goal is that the hydrophones be constructed in such a way that they can be mounted into a structural frame that NRL is building. Initially this frame will be a spherical lattice of thin rods with mounts for the hydrophones at the vertices. The mounts will firmly hold the preamplifier housings in places, with the sensitive receiving elements projecting outwards from the sphere. These hydrophones are to be high-fidelity units that are fairly small and lightweight. (Details of the physical requirements are given below.) Since we sometimes need to use long lengths of cable on these hydrophones (initially up to 100 meters, but this will later be extended to several hundred meters), the hydrophones must have a built-in signal preamplifier at the receiver element, and include a high pass filter to prevent saturation from the effects of surface waves. Other considerations include the size and weight of the hydrophone and preamplifier housing, the size of the underwater cable, and the physical robustness of the entire assembly. Usable Frequency Range shall be 15Hz to 480 kHz or higher. Sensitivity: Minus 186 dB re 1V/microPa or better over the usable frequency range, Must not vary by more than plus or minus 3 dB over this usable frequency range, Must not vary by more than plus or minus 2 dB in the frequency range 15 Hz to 200 kHz. and Each hydrophone should come with an individual calibration chart showing its Receiving Sensitivity over its usable frequency range. Directivity: Horizontal (radial x-y plane); Omni-directional to plus or minus 2 dB or less below 100 kHz, and Omni-directional to plus or minus 3 dB or less at 100?300 kHz, Vertical (axial x-z plane); Over 270 Degrees, plus or minus 2 dB or less at 100 kHz and Over 270 Degrees, plus or minus 3 dB or less at 100?300 kHz. Preamplifier: Gain: Fixed, in the range 25 to 30 dB, DC Supply: 12 to 24 V. (Supply will be furnished by NRL.) Power Consumption: 50 mW or less. Max. cable length drive capability: 1000 meters or more. Hi-pass filtering: 15Hz, 3dB/Octave roll-off or better. And Noise: Above 1 kHz, equivalent spectral noise pressure level must be 45 dB re 1V/microPa or less. Below 1 kHz, equivalent spectral noise pressure level must be below Seastate Zero level. (By this, we mean lower than 45 dB re 1V/microPa at 1 kHz, rising to 75 dB re 1V/microPa down at 10 Hz.). Calibration: Provision must be made to be able to provide a calibration signal to the preamplifier down the cable, for the purpose of checking the correct operation of the unit. Operating Conditions (continuous): Minus 2 Degrees C or lower to 50 Degrees C or higher and Depths of 900 meters or greater. The units will be subjected to oceanic salt water environments for periods of weeks at a time. Physical: The cables must be detachable from the body of the hydrophone/preamplifier units. This must be achieved through any of a number of industry standard watertight connectors that are readily available commercially, and can easily maintain a watertight connection down to depths of 900 meters. Typically these connectors push together to achieve an electrical connection, and then an outer screw mechanism is engaged to compress an o-ring, thus achieving a physically secure link that is also watertight. NRL requires a commonly available connector of this type on the units being purchased here. The other end of the cables will be pig-tails (no termination). The hydrophone, preamplifier housing, and connector (that will mate to the cable) must all form a single, rigid unit. In other words, once the preamplifier housing is firmly held in one position, there can be no relative motion of either the hydrophone receiving element (the ceramic) or the watertight connector. The cables and connectors must be at least 7 conductor, one being for ground, two for signals (since the preamplifier is differential), one for DC power supply, one for cable shield, one for sending a calibration signal to the preamplifier, and at least one as a spare. The cable should include a 500lbs strain relief, and be water blocked with a material that can withstand a salt water environment, such as polyurethane. The cable OD should be around 1cm. (Smaller cables are acceptable, but any larger than 1.1cm diameter is unacceptable.) The preamplifier housing must be cylindrical in shape, with the cylindrical axis aligned with the axis of acoustical symmetry. This housing must be rigidly constructed of a metal that will be resistant

to corrosion from salt water (for example, stainless steel or aluminum bronze). Its outer diameter must not exceed 4 cm (smaller would be preferable), and its length must be at least 5cm but no longer than 15cm (not including the connector on the rear of the unit). The tip of the receiving element (the ceramic) must extend away from the body of the preamplifier housing by 10cm (plus or minus 1 cm), and must be protected by a chloroprene rubber skin or some other material that will be resistant to salt water environments while still being acoustically transparent. A smaller size to the active element is preferable, and together with its protective skin should have a diameter of no more than 1.5 cm (smaller would be preferable). Each hydrophone/preamplifier integral unit, when detached from the cable in air, must weigh no more than 1.5 lbs. Delivery and acceptance is at NRL, Washington, D.C. 20375, FOB Destination. The contractor shall deliver the spectrometer no later than sixty (60) days after contract award. The provision at 52.212-1, Instructions to Offerors-Commercial, applies to this acquisition. The provision at FAR 52.212-2, Evaluation--Commercial Items is incorporated. The Government intends to award a contract resulting from this solicitation to that responsible offeror whose offer conforming to the solicitation will be the most advantageous to the Government, price and other factors considered. The following factors shall be used to evaluate the offers: (i) Technical capability of the item offered to meet the Government's requirement; (ii) Past Performance; and (iii) Price. Technical capability and Past Performance, when combined, are more important than price. Offeror must complete and submit with its proposal, FAR 52.212-3 Offeror Representations and Certifications--Commercial Items and DFARs 252.212-7000 Offeror Representations and Certifications--Commercial Items, which are identified as B and available electronically at: <http://heron.nrl.navy.mil/contracts/repсандcerts.htm>

The clause at FAR 52.212-4, Contract Terms and Conditions-Commercial Items and FAR 52.212-5, Contract Terms and Conditions Required To Implement Statutes or Executive Orders--Commercial Items, applies to this acquisition. The additional clauses cited within this clause are applicable: 52.203-6, 52.219-6, 52.219-8, 52.219-14, 52.222-3, 52.222-19, 52.222-21, 52.222-26, 52.222-35, 52.222-36, 52.222-37, 52.222-39, 52.225-13, and 52.232-33. The DFARs clause at 252.212-7001, Contract Terms and Conditions Required to Implement Statutes or Executive Orders Applicable to Defense Acquisitions of Commercial Items applies to this acquisition. The additional clauses cited within this clause are applicable: 52.203-3, 252.225-7012, 252.227-7015, 252.225-7036, 252.227-7037, 252.232-7003, 252.243-7002, 252.247-7023, and 252.247-7024

The following additional FAR and DFARs clauses apply: 52.204-7 Central Contractor Registration, 252.204-7004 Alternate A. and 252.211-7003 Item Identification And Valuation (APR 2005). The following additional FAR clause applies: 52.214-31. Facsimile proposals are authorized and may be forwarded to the contract specialist point of contact provided below. Any resultant contract will be DO Rated under the Defense Priorities and Allocations System (DPAS). The Contract Specialist must receive any questions concerning the RFP no later than 10 business days before the response date of this solicitation. An original and two copies of the offeror proposal shall be received on or before the response date noted above, 4:00 P.M., local time at the NRL address above, Attn: Contracting Officer. The package should be marked with the solicitation number, due date and time. The U.S. Postal Service continues to irradiate letters, flats, Express and Priority Mail with stamps for postage and other packages with stamps for postage destined to government agencies in the ZIP Code ranges 202 through 205. Due to potential delays in receiving mail, offerors are encouraged to use alternatives to the mail when submitting proposals. All responsible sources may submit a bid, proposal, or quotation which shall be considered by the agency. Other business opportunities for NRL are available at our website <http://heron.nrl.navy.mil/contracts/rfplist.htm>. See Note Number 1.

Point of Contact

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Place of Performance

Address: Naval Research Laboratory, Washington, DC
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