

This combined synopsis/solicitation is hereby amended to answers questions received from potential offerors, provide for a site visit and extend the date for receipt of proposals.

A) Provide answers to questions as follows:

1. QUESTION: Are there mounting points already in place to mount the new system to?

ANSWER: Walls, ceiling, and floor are steel-plated and welded together. The present positioner uses L-channel steel members bolted to the ceiling and floor.

2. QUESTION: In the solicitation it alludes to removing the existing hardware, are the same mounting points to be used?

ANSWER: The vendor may retain or remove the existing steel L-channel hardware mounting as needed.

3. QUESTION: What hardware is existing?

ANSWER: The existing hardware consists of a vertical column along which a movable horn which has vertical motion along the column. The column can move horizontally using a ball-bearing worm-drive shaft at the floor. A splined rotating shaft with a geared slip-ring collar is used to support the upper part of the column and to position the horn vertically. Two servo motors are independently driven to provide motion. The two motors that run the X-Y positioned are outside of the chamber on either ends of the wall along which the positioner moves.

4. QUESTION: In the solicitation in the 'Structure' section it mentions floor and ceiling rails may be located below the anechoic chamber material. Metal will react minimally if behind the material. Is it acceptable to use metal guide rails that are below the level of the anechoic material?

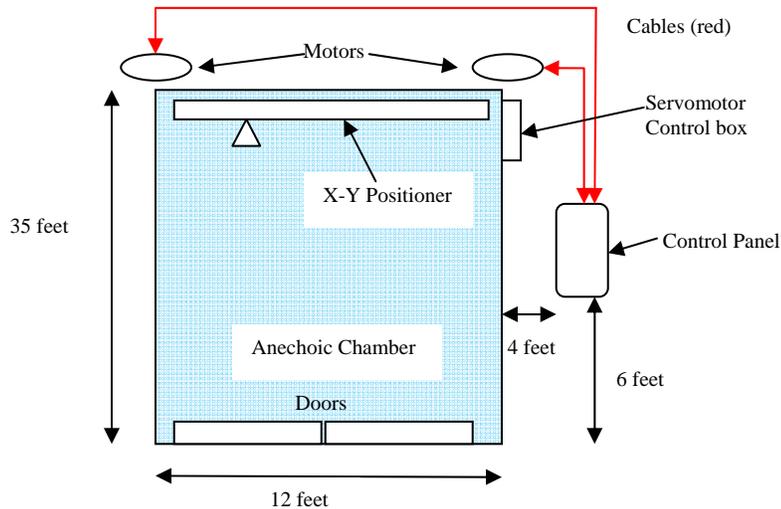
ANSWER: Yes.

5. QUESTION: How do cables enter into the chamber?

ANSWER: Cables enter the chamber via holes cut through the steel walls.

6. QUESTION: How far is the vendor provided control panel from the chamber?

ANSWER: The current control panel is a rack-mounted assembly located outside of the chamber to the right of the chamber (looking from the chamber door towards the X-Y Positioner). The figure below shows the location of the rack. It is desired that the panel be no further than it currently exists. Site visit is encouraged.



7. QUESTION: How far is the 110VAC or 208VAC power from where the vendor provided control panel will be located?

ANSWER: The 120 volt, 60 Hz and 120/208 volt, 3Ø, 60 Hz AC power is currently located within 4 feet of the servomotor control box. Site visit is encouraged.

8. QUESTION: How far is the NRL equipment that will interact with vendor provided system?

ANSWER: The NRL equipment will be about 12 feet from the vendor provided system. Site visit is encouraged.

9. QUESTION: With regards to Horns. Are they provided by the vendor or NRL?

ANSWER: The horns are provided by NRL.

10. QUESTION: If provided by the vendor does a single horn need to cover the 4-40GHz spectrum or can multiple quick change horns be used?

ANSWER: See answer to question 9.

11. QUESTION: If provided by the NRL is there a special mounting bracket required?

ANSWER: Yes, the vendor needs to provide a special mounting bracket for a WR-90 waveguide to which the antenna horn will be connected. The input port to the bracket assembly will be for a coaxial cable using an SMA connector. The bracket will be part of a carriage that will move horizontally along the positioned rail.

12. QUESTION: Does the vendor need to provide a frequency source for the horn?

ANSWER: No.

13. QUESTION: If the vendor provides the frequency source is that also controlled by NRL equipment?

ANSWER: See question and answer #12.

14. QUESTION: What is the maximum power a horn will handle?

ANSWER: A standard gain horn can typically handle 250W. However in our low power chamber we do not expect to transmit more than 1W from the horn.

15. QUESTION: If it is possible to create both Straight Linear & Curvilinear motion using the same system can that be included as a third option? Or is the NRL only interested in one of the two options spelled out in the solicitation?

ANSWER: The basic requirement is that the line-of-sight of the transmit antenna beam from movable and fixed horn be directed at the radar on the flight table at all times in a simulation. All proposals will be considered.

16. QUESTION: For the control signal from the external input what input impedance is expected?

ANSWER: In reference to the external mode of the control panel in which external analog voltages are provided to the control panel to position the antenna horn, the analog voltages are generated by a Systran DAC128V board. The maximum current output is 20mA. The DAC will be connected to the control panel with a 50 ohm coaxial cable of approximately 30 feet length. The input impedance of the control panel input should be designed with these considerations.

17. QUESTION: What is the maximum rate of change of the input signal.

ANSWER: The voltage applied in external mode will be proportional to the position of the moving horn. Therefore figures 2 and 4 of the proposal can be used to calculate the rates of the change of the voltage.

18. QUESTION: Is it possible to do a walk through and see the chamber?

ANSWER: Yes. See the site visit paragraph contained herein.

19. QUESTION: The weight of a horn is listed as 1lb. in the Introduction and Table 1: Specifications. However under Factory Acceptance Test it is stated that the horn will not exceed 5 lb. Please clarify which weight is correct.

ANSWER: The factory acceptance testing should be amended to state that the horn weight will not exceed 1 lb.

20. QUESTIONS: Table 1: Specifications, states the maximum speed of 32 inches/sec for the X axis. However, Figure 3. shows a maximum speed of close to 85 inches/sec. Does the positional accuracy of +/- 0.2" specified in Table 1 for the X axis have to be maintained at speeds above 32 inches/sec?

ANSWER: The positional accuracy applies only to speeds below the maximum speed of 32 inches/sec and does not need to be maintained for speeds above 32 inches/sec.

21. QUESTION: Table 1: Specifications, states the maximum speed of 24 inches/sec for the Y axis. However, Figure 5. shows a maximum speed of close to 300 inches/sec. Does the positional accuracy of +/- 0.5" specified in Table 1 for the Y axis have to be maintained at speeds above 24 inches/sec?

ANSWER: The positional accuracy applies only to speeds below the maximum speed of 24 inches/sec and does not need to be maintained for speeds above 24 inches/sec.

22. QUESTION: Under Motion Requirements it is stated that the $x=0, y=0$ position is at the center of the working area in Figure 1. We interpret this as the y axis position can change from -60 inches to 60 inches. However, Figure 4. shows a positional change from 0 to 120 inches. Please clarify.

ANSWER: The scale for the Y-pos axis in figure 4 is in error. The scale should be from -60 to +80 inches which is compatible with $x=0, y=0$ position being at the center of the working area.

23. QUESTION: Under Control it is stated that in external mode the motion will be defined by the simulation computer. Is the vendor to supply software to define the motion profile? If so, what information will be entered to define said profile? This is not listed as a requirement under Software.

ANSWER: In external mode, the motion profile will be provided by the NRL simulation computer. The simulation computer will supply voltages to the vendor's controller which will result in motion of the horns.

24. QUESTION: Under Control it is stated that in manual mode the controller computer will allow the user to specify the desired location of the horns. Is the vendor to supply this software? This is not listed as a requirement under Software.

ANSWER: The vendor shall provide software to position both horns to a position specified by user, when the manual mode option is selected. The user interface software will be provided by the vendor to run on the controller computer (provided by the vendor). The interface software will allow selection of modes, external or manual, and allow specification of horns in manual mode. See revised specifications.

25. QUESTION: Under Structure it states that the floor and ceiling rails may be below the level of the anechoic material. What is the height of this material?

ANSWER: On the floor, there are anechoic rectangular blocks of height 24 inches. On the ceiling there are pyramidal cones that extend down 12 inches. On the sides, there are pyramidal cones extending out 12 inches.

26. QUESTION: What is the size of the opening to the anechoic chamber for installation purposes?

ANSWER: The opening to the anechoic chamber is approximately 5'8" wide and 8'5" high.

27. QUESTION: Figure 2 motion profile (Azimuth vs. Time (Horizontal Position)) on page 3 of the X-Y Positioner System Specification identifies an X position of 5 inches at 12 seconds (approximate) and 60 inches at 13 seconds (approximate). This corresponds to rate of 55 inches per second. Table 1 on page 5 of the X-Y Positioner System Specification identifies a maximum X-Position speed of 32 inches per second. Which speed value is correct?

ANSWER: Even though figure 2 indicates speeds in excess of 32 in/sec, the horn speed is not required to exceed 32 in/sec.

28. QUESTION: Figure 4 motion profile (Elevation vs. Time (Vertical Position)) on page 4 of the X-Y Positioner System Specification identifies a Y position of 42 inches at 12 seconds (approximate) and 100 inches at 12.75 seconds (approximate). This corresponds to rate of 77 inches per second. Table 1 on page 5 of the X-Y Positioner System Specification identifies a maximum Y-Position speed of 24 inches per second. Which speed value is correct?

ANSWER: Even though figure 4 indicates speed in excess of 24 in/sec, the horn speed is not required to exceed 24 in/sec.

29. QUESTION: Table 1 on page 5 of the X-Y Positioner System Specification identifies that the maximum X-Position acceleration must meet the representative profiles of Figures 2 and 3 up to maximum speed. What is the maximum speed? (See Question 1 of this email.) Figure 3 motion profile (Azimuth Speed vs. Time (Horizontal Speed)) on page 4 of the X-Y Positioner System Specification identifies an X position speed of 80 inches/sec at 13 seconds (approximate) and 32 inches/sec at 12 seconds (approximate). This corresponds to an acceleration of 48 inches /sec². If we assume that we only need to follow the motion profile of Figure 3 up to the 32 inch per second maximum X-position speed identified in Table 1, then we calculate an acceleration of 20 deg/sec². (20 inches/sec rate at 11.4 seconds (approximate) increasing to 32 inches/sec at 12 seconds (approximate)). Which acceleration value is correct.

ANSWER: The acceleration of 20 in/sec² is the correct value. The maximum speed is 32 in/sec (see answer to question 27).

30. QUESTION: Table 1 on page 5 of the X-Y Positioner System Specification identifies that the maximum Y-Position acceleration must meet the representative profiles of Figures 4 and 5 up to maximum speed. What is the maximum speed? (See Question 2 of this email.) Figure 5 motion profile (Elevation Speed vs. Time (Vertical Speed)) on page 5 of the X-Y Positioner System Specification identifies a Y position speed of 30 inches/sec at 13 seconds (approximate) and 100 inches/sec at 12.5 seconds (approximate). This corresponds to an acceleration of 500 inches /sec². If we assume that we only need to follow the motion profile of Figure 5 up to the 24 inch per second maximum Y-position speed identified in Table 1, then we calculate an acceleration of 12 deg/sec². (12 inches/sec rate at 11 seconds (approximate) increasing to 24 inches/sec at 12 seconds (approximate)). Which acceleration value is correct?

ANSWER: The acceleration of 12 in/sec² is the correct value. The maximum Y-position speed is 24 in/sec (see answer to question 28).

B) Site Visit:

A site visit is hereby scheduled on 14 APR 2009 at 1:00 PM EST.

Potential offerors are encouraged to visit the site in order to gauge the effort required to remove existing hardware and to look at the layout of rack location and cables and to satisfy themselves regarding all general and local conditions that may affect the price.

In no event shall failure to inspect the site constitute grounds for a claim after contract award.

Questions WILL NOT be answered during the site visit. All questions shall be submitted in writing at the site visit or within three (3) days after the site visit via facsimile to (228) 688-6055 or by email to esogard@nrlssc.navy.mil.

Offerors are required to supply their own writing materials. Inquiries should contain the Solicitation Number (N00173-09-R-SE02) and must be addressed to the attention of Code 3235.SE, Mr. Eric Sogard.

To make arrangements to attend, offerors should contact Mr. Eric Sogard, Contract Specialist via e-mail at: esogard@nrlssc.navy.mil by 4:00 PM CST on 10 APR 2009. The e-mail request

MUST include the following information:

1. Name of the Contractor
2. Name of Each Individual to Attend*
3. Telephone Number of Each Individual to Attend

** Please try to limit the number of people to two (2) from each contractor.*

Offerors are hereby notified that the site visit will take place at the Naval Research Laboratory, Washington, DC. The specific meeting location will be provided when making arrangements. No cameras, firearms, or alcoholic beverages are allowed on the Laboratory. No transmitting devices such as pagers or cell phones are allowed in the site visit area they should be left in their vehicles.

All Attendees Must Be U.S. Citizens With Valid I.D., And/Or Must Have A Valid Green Card In Their Possession The Day Of The Site Visit To Enter The Naval Research Laboratory. (No Exceptions Will Be Made)

C) Extend the "Response Date" for the receipt of proposals to: "21 APR 2009".