NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
NASA SHARED SERVICES CENTER

RECOMMENDATION AND DETERMINATION TO SOLICIT FROM ONE SOURCE
OR BRAND NAME

PICK ONE

Sole Source:

☒I recommend that NASA, NASA Shared Services Center negotiate with Sienna Technologies. Inc only for Multichip Module Package for SiC Pressure Sensors. The total estimated cost of this effort is [redacted] and the estimated period of performance or lead-time for delivery is 12/31/26.

OR

Brand Name Justification:

☐I recommend that NASA, NASA Shared Services Center negotiate with only with vendors who can provide the subject band name from Manufacture Name for Enter Supply or Service to be procured. The total estimated cost of this effort is Enter Dollar amount and the estimated period of performance or lead-time for delivery is Date.

This recommendation is for the acquisition of supplies or services determined to be reasonably available from only one source/only one manufacture. Competition is impractical for the following reasons (please answer the questions below):

1. **What are the reasons for soliciting only the suggested source/suggested brand name?** Please provide the unique characteristics of the items or services along with the supporting rationale and the market research performed to substantiate your reason for the suggested source/brand name.

   NASA Glenn Research Center is developing silicon carbide (SiC) high-temperature pressure/temperature sensors capable of operating in extreme environments exceeding 600°C. This procurement is for the fabrication of a specialized Multi-Chip Module (MCM) package that incorporates Government-furnished SiC sensors onto a custom aluminum nitride (AlN) circuit board with a coefficient of thermal expansion not exceeding 4 ppm/°C to closely match the SiC devices. The effort also requires the precision installation and gold attachment of Au-plated nickel pins into blind holes, fabrication of a hermetically brazed AlN receptacle to a Kovar tube capable of withstanding temperatures up to 700°C, and delivery of fully assembled components in accordance with the Government's drawings and export-controlled technical data.

   Sienna Technologies previously fabricated this exact MCM configuration [redacted] and possesses the manufacturing processes, tooling, and technical expertise required to produce hardware that is fully compatible with NASA's existing sensor design and testing program. Use of the same source ensures continuity in material properties, fabrication methods, hermetic sealing, and thermal performance, thereby minimizing technical risk and maintaining consistency with previously validated hardware.

2. **What is the impact to the government if another vendor/brand is used?** Include any dollar, schedule, or compatibility impacts if possible.

   Awarding this requirement to another vendor would require qualification of a new manufacturing source for the specialized MCM package, including verification of material compatibility, hermetic brazing processes, Au attachment methods, thermal expansion characteristics, and fabrication tolerances to ensure compatibility with NASA's existing SiC pressure/temperature sensors. This would likely require additional engineering evaluations, prototype fabrication, testing, and validation before flight or research hardware could be accepted.

   These activities would significantly delay the project schedule, increase program costs, and introduce technical and performance risks that could affect ongoing research. Additionally, because the requirement is based on export-controlled technical data and a previously validated hardware configuration, transitioning to a new source could result in incompatibility with existing assemblies and require redesign or requalification of the MCM package. Procuring from Sienna Technologies minimizes these risks and supports timely delivery of hardware by December 31, 2026.

[redacted]
Technical User Name

6/20/2026
Date

[redacted]
Title

Office