NEW MEXICO TECH
SCIENCE • ENGINEERING • RESEARCH UNIVERSITY

Sole Source Application and Determination Form

A sole source determination is not effective until the sole source application for determination has been posted on the Purchasing website for thirty (30) calendar days without protest and is subsequently approved in writing by the Vice President of Administration and Finance.

1. Name of Department: Electrical Engineering
   Contact Name: Anders M. Jorgensen
   Phone: 575-835-5450
   Email: Anders.M.Jorgensen@nmt.edu

2. Name of Prospective Vendor: Space Science and Engineering, Ltd.
   Contact Name: Professor Janos Lichtenberger
   Phone: +36-1-372-2934
   Email: lityi@sas.elte.hu
   Estimated Cost: $35000 per year
   Duration (for Services or Professional Services – limited to four years): four years

3. Purpose/need for purchase and detailed list of items of tangible property, services, or professional services:

   The purpose of this purchase is to obtain a design for a VLF receiver, which will be installed on-board the satellite as well as on multiple VLF ground stations. The vendor will supply schematics related to antenna, cabling, amplifiers, sampling circuit, computer, storage, power. The schematics will include all parts numbers and system layout, except for commodity parts such as power, storage, and cables. The schematics will be used by New Mexico Tech students to build these systems, according to the vendor specifications.

4. Detailed explanation of criteria developed for this purchase:

   The designed instrument must be able to measure VLF whistler waves. The design must include a front-end amplifier of the correct gain to work for each of the space-based antennas and the

ground-based antennas. This is not something easily found in the literature, so the vendor must already have experience.

5. Provide a detailed, sufficient explanation of the reasons, qualifications or unique capabilities of the prospective vendor that make that prospective vendor the one source for providing the items of tangible property, services, or professional services:

   Professor Lichtenberger, CEO of Space Science and Engineering, Ltd., has a lifetime of experience building, deploying, and operating such instruments across the world and in space. Recent Relevant projects for ESA:

   - Coordinator of PLASMON (A new, ground based data-assimilative model of the Earth's Plasmasphere – a critical contribution to Radiation Belt modeling for Space Weather purposes) (http://plasmon.elte.hu), EU FP7-Space project.

   - Coordinator of FARBES (Forecast of Actionable Radiation Belt Scenarios), https://farbes.eu, EU Horizon Europe project.

   - Co-Investigator of Plasma Wave Instrument, BepiColombo MMO

   - PI of ESA PLASMA (P3-SWE-LII) 'Plasmaspheric Products for Space Weather Services' funded by ESA through its SSA SWE program (Contract No. 4000131840/20/D/KS). The products developed in this project has been published at: https://swe.ssa.esa.int/elte-plasma-federated

   - Hungarian Principle Investigator (PI) of rb-fan2 project 's2p s1-sw-14.2 Space Environment Nowcast and Forecast, Development Part 2', (contract no. 4000140076/22/D/KS)

   - PI of 'Validation of the plasmaspheric electron density data by simultaneous analysis of WHISPER and Automatic Whistler Detector and Analyzer Network (AWDANet) data' ESA PECS project

   - Hungarian PI of the Trabant and Chibis-AI microsatellites and Obstanovka Phase-2 mission on International Space Station

   - PI of ESA PRODEX project Measuring the efficacy of a satellite VLF transmitter with magnetic loop/solenoid antenna in a plasma chamber (proof of concept)', ESA contract No. 4000151652

6. Provide a detailed, sufficient explanation of how the items of tangible property, services, or professional services is/are unique and how this uniqueness is substantially related to the intended purpose of the department/grant:

   These VLF instruments are scientific instruments. There are few research groups in the world who build and deploy these instruments. Originally, Professor Lichtenberger was specifically selected to participate in the grant project through a subaward to the University of Hungary. He has since formed his own company.

7. Please provide a narrative description department's due diligence in determining a basis for the procurement. Include:
    a. method used to research and review other available sources (i.e. list of potential vendors from Purchasing, internet, state pricing agreements, purchasing cooperatives) Internet Gemini search.

    b. list of vendors contacted, the date and method of contact (i.e. email, phone call) Please see below. Research was conducted through the vendors' websites.

    c. documentation explaining why:
        i. those vendors cannot provide the required items of tangible property, services, or professional services

        Collins Aerospace - Mentions VLF communication for defense which suggests submarine communication, not VLF whistler measurements

        Continental Electronics - Mentions high-power amplifiers, which is consistent with the large transmitter power required for communicating with submarines

        Goonhilly Earth Station - website lists satellite communications services, but nothing related to VLF receivers for either space or ground.

        Sener - aerospace company with no specific stated expertise in VLF

        Long Wave Inc. - They appear to be a provider of services for the US military submarine communications systems

        ii. other similar items of tangible property, services, or professional services cannot meet the intended purpose of department/grant:

        This is a unique instrument, which is not available commercially. The only way to obtain the design is from another research group.

I certify I have performed thorough and diligent research and analysis to determine that Space Science and Engineering, Ltd. is the only source capable of providing the required design for a VLF receiver. I understand that violations of the New Mexico Procurement Code (Chapter 13, Article 1 NMSA 1978) can carry severe penalties. I affirm that the information provided in this Sole Source Determination is true and accurate to the best of my knowledge and belief.

Name, Title:

Professor

Received 06/16/2026

Review: Purchasing Services: Lisa Majkowski, Director Lisa Majkowski 06/22/2026

Website Posting Date: 06/22/2026

Posting Expiration Date: 07/22/2026

Protested (Yes/No):

Approval: Delilah A. Walsh 22-Jun-2026
Vice President of Administration and Finance

Version: July 2025

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Final Audit Report 2026-06-22

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