Hello Bradley,

Spectrolab, a wholly owned subsidiary of The Boeing Company solar cells and panels power a vast percentage of all satellites in Earth’s orbit, as well as the International Space Station. Since its founding in 1956, Spectrolab has led the way in the development of high-efficiency solar cells for space missions. During the Apollo 11 mission in 1969, a Spectrolab product became the first solar panel to be placed on the moon. Spectrolab solar panels are in operation on Mars, as part of a reconnaissance satellite and two land-exploration rovers.  Today, Spectrolab solar cells support volumes of commercial, national security and civil space programs encompassing 60 years of space heritage.  In July 2016, Spectrolab was the first to have solar cells operating on an interplanetary Jupiter mission.  The Juno probe now holds the record for being the farthest solar-powered spacecraft away from the sun (792 kilometers) from its power source.

Spectrolab is pleased to provide you with product information for our space qualified solar cell assemblies (CICs).  Our CICs include coverglass (protection against cosmic radiation), 2 silver interconnects (for series welding or soldering), and a rearside-installed Si bypass diode for protection against shadow-induced reverse bias. A description of our standard CICs is provided below:

**30.7% NeXt Triple Junction Prime (XTJ Prime)**

Specifications: 30.7% XTJ Prime CIC, 27.22 cm2, 5 mil coverglass (PN 047435-501),

Currently the highest efficiency space solar cell available in the industry

Fully qualified in accordance with AIAA-S111-2005

Pricing:  $275 per CIC (For quantities > 50 and <1K)

Pricing:  $285 per CIC (For quantities < 50)

Product Lead Time: 3-4 weeks or sooner from date of purchase order acceptance and payment in full (CIC quantities < 1K)

**28.3% Ultra Triple Junction (UTJ)**

UTJ has extensive years of Space Heritage

Specifications: 28.3% UTJ CICs, 26.62cm2, 4 mil coverglass (PN 043575-107)

Fully qualified in accordance with AIAA-S111-2005

Pricing:  $265 per CIC (For quantities > 50 and <1K)

Pricing:  $275 per CIC (For quantities < 50)

Product Lead Time: 2-3 weeks 3-4 weeks or sooner from date of purchase order acceptance (CIC quantities < 1K)

Spectrolab’s pricing is based on volume quantity and we provide price breaks for large volume purchases. Please note that Spectrolab’s quoted price is valid for 30 days from date of quotation.  Additionally, pricing is based on product configuration requested, volume quantity, inventory availability (residual or new build product), and timing of PO placement.  Alternatively, from time to time Spectrolab may have an inventory of residual space grade solar cells that we may provide at a discounted price.  Quantities are available while supplies last.

Spectrolab has an abundance of experience laying down space cells on to panels/substrates.  The cost for this service may be provided upon receipt and review of the Statement of Work (mission life, orbit environment (LEO, MEO, or GEO), power requirements (BOL and EOL), and operating temperature).  Additionally, we will require the size of the customer furnished substrate and a detailed layout of the circuits on panels if available.  If you would like for Spectrolab to provide the panel(s) they may be provided at an additional cost.

Spectrolab's space qualified photovoltaic products are governed by the Export Administration Regulations (15 CFR 730-774), and are categorized as ECCN 3A001e.4. For additional information, please refer towww.bis.doc.gov. Moreover, if you wish to purchase these space solar cells, please complete the attached Purchase Application Form which contains our Terms and Conditions and ensure to provide a response to the Export Regulations Compliance section.

Space solar cells, CICs, and panels are generally classified by the U.S. Department of Commerce under the EAR and may be exported to many countries outside the U.S. depending on the country, export licenses may be required. Additionally there are a limited number of countries and entities to which export is denied. Note: Spectrolab does not accept orders for small quantities outside the U.S. (except for Canada), as the related export costs are not cost-effective on small purchase orders.

Spectrolab’s payment terms include payment via check, wire transfer, VISA or MasterCard. Additionally, the minimum purchase order value is $2,500.

Shipment of Product: Providing your freight courier information such as FedEx, UPS or other shipping account number will help expedite delivery. If a shipping account number is not provided at the time of product purchase, shipping and handling and/or insurance costs will be added to the invoice.

Spectrolab has a strong quality and reliability culture and track record. We are ISO9001 and AS9100 registered, and ISO14001 Environment Management Systems certified by DNV.

We thank you for your valued business and interest in our high efficiency solar cell technology.

Kindest regards,  
*Silver*

Silvestra Alexander   
Marketing and Business Development

818-838-7494 Office

805-282-6651 Mobile

**© 2017 Spectrolab, Inc. All rights reserved. This document is intended for the sole and exclusive use of the recipient and may not be distributed or transferred in any form to any other person or entity without the express written consent of Spectrolab. This document may be copied, in part or in whole, by the recipient for its own company internal use only. Unauthorized copying under any other circumstances is a breach of copyright.**