

## JUSTIFICATION FOR OTHER THAN FULL AND OPEN COMPETITION

Upon the basis of the following justification, I as Contracting Officer hereby approve use of the other than Full and Open competition for the proposed contractual action pursuant to the authority of 10 USC 2304(c)(1), only one responsible source and no other supplier or servicing activity will satisfy agency requirements, as implemented by FAR 6.302-1.

### **1. Contracting Activity**

Naval Postgraduate School  
Department of Contracting and Logistics  
1 University Circle  
Monterey, CA 93943

### **2. Description of the Action Being Approved**

This justification covers the procurement of a Terahertz Quantum Cascade Laser from LongWave Photonics LLC. This justification for other than full and open competition will be posted at the Government wide Point of Entry.

### **3. Description of Supplies/Services**

Plug and play (turnkey) terahertz Quantum Cascade Laser source with average power levels higher than 10 mW, and frequency of operation of 4.7 THz. The system must be configurable with different of QCLs emitting at discrete frequencies between 3 and 5 THz in CW and pulsed modes and single and multimode. The system must be standalone, not requiring any external equipment/arrangement, such as focusing optics, current driver, cryogenic cooler, etc, to operate. Power supply must be compatible with 100 to 240 VAC, 60 Hz. It is required that the system comes with provision for simultaneous multiple QCLs operation. Other emitting heads will be purchased in the future to comply with the needs of the project.

The estimated cost is [REDACTED] including shipping and installation.

### **4. Statutory Authority Permitting Sole Source**

[FAR 6.302 -- Circumstances Permitting Other Than Full and Open Competition.](#)

- [6.302-1 -- Only One Responsible Source and No Other Supplies or Services Will Satisfy Agency Requirements.](#)

### **5. Rational Justifying Use of Cited Statutory Authority**

LongWave's QCL source has no known competitors which produce the same amount of power (10 mW) at this frequency range (2 to 5 THz). These sources do not require optical adjustment (preventing the need for costly service), have no consumables, and can be modulated for synchronous detection. LongWave has critical patents protecting the gain media and the high-power extraction cavity design (US7548566 and US8619832).

## **6. Description of Efforts Made to Solicit Offers from as Many Offerors as Practicable**

Only LongWave Photonics LLC sells the required turnkey terahertz QCL system, therefore no other offerors were considered.

## **7. Determination of Fair and Reasonable Cost**

Costs will be determined fair and reasonable at time of award by the Contracting Officer and based on previous contracts and similar contracting efforts.

## **8. Market Research**

The end user has been leading the research in THz sensing at NPS for more than 8 years, and during this time, has familiarized himself with many other research groups working in this field and the companies that supply research grade THz products. In addition, the end user has participated in many related conferences and exhibitions (such as SPIE Optics and Photonics and Photonics West – the largest gathering of optical component and laser vendors in the world), and discussed the topic with most of the known research groups in this arena. Using this knowledge base and research network along with extensive internet search and phone calls to potential vendors, the end user has found just one supplier with the capability to provide a high power (> 10 mW) THz QCL, which is required for the research to progress. There are several commercially available QCL manufactures (Hamamatsu Inc. and Thorlabs Inc., etc.) who make lasers operating in the infrared range, however none in the needed operation frequency range and output power. LongWave Photonics LLC is the only supplier found who manufactures lasers which meet the requirements.

## **9. Other Facts Supporting Use of Other Than Full and Open Competition**

None.

## **10. Actions to Remove Barriers to Future Competition**

This is a research grade system that is state of the art technology. In the future this technology might be more mature and available by other providers. In addition, due to the evolution of the research, different technologies might be required.

**CERTIFICATIONS AND APPROVAL**

**TECHNICAL/REQUIREMENTS CERTIFICATION**

I certify that the facts and representations under my cognizance which are included in this Justification and its supporting acquisition planning documents, except as noted herein, are complete and accurate to the best of my knowledge and belief.

Technical and Requirement Cognizance:



**CONTRACTING OFFICER CERTIFICATION**

To the extent that the LSJ value is between \$2,500 and \$150K for services and between \$3K and \$150K for products, the Contracting Officer's signature below also represents approval of the J&A/LSJ.

