Statement of Considerations

REQUEST BY SPECTRUM FML, INC. FOR DOMESTIC AND FOREIGN RIGHTS IN SUBJECT INVENTIONS S-124,650 MADE IN THE COURSE OF OR UNDER UT-BATTELLE PRIME CONTRACT NO. DE-AC05-00OR22725; DOE WAIVER DOCKETS: W(I)2017-009

Spectrum FML, Inc. (Petitioner), has made a timely request for a waiver to worldwide *undivided* rights in a subject invention (the subject invention) made in the course of or under UT-Battelle, Prime Contract No. DE-AC05-00OR22725 for the management and operation of Oak Ridge National Laboratory (ORNL). The subject invention (DOE S-124,650) is entitled, "Infrared Signal Generation from AC Induction Field Heating of Graphite Foam." The subject invention is related to the field of airport lighting systems, including specialized lighting characterized by unique spectral attributes that may be exploited for aircraft guidance and position determination systems. The invention was funded by the ORNL Seed Money Fund.

The subject invention arose from an informal collaboration between Petitioner's employee and UT- Battelle employees working under UT-Battelle Non-Disclosure Agreement (NOA) No. 17651P between Flight Spectrum, LLC and UT-Battelle dated August 28, 2012. The information disclosed under the NOA was described as "Company's Proprietary Information related to LED infrared lighting." The NOA was signed by a John Monk, CEO of Flight Spectrum and UT-Battelle researcher James Klett, the inventor of ORNL's graphite foam technology. Over the next several months, Petitioner and ORNL collaborated to build a crude prototype of an emitter device. On May 1, 2013, the UT-Battelle inventors disclosed the subject invention to ORNL's legal staff which was then disclosed to DOE on May 2, 2013. The invention was described as a method to use graphite foam to heat with an AC induction field to generate a high output of infrared (IR) energy for signaling. The stage of development was described as "Proof of Principle." With knowledge and input from Petitioner, UT-Battelle elected its rights to the subject invention on September 11, 2013 and filed a patent application on August 22, 2014 naming four UT- Battelle inventors and Mr. Monk, Petitioner's CEO.

On March 11, 2014, Petitioner and UT-Battelle entered into a Strategic Partnerships Project (SPP) Agreement (NFE-13-04740) focused on developing an IR emitter for use in runway lighting using ORNL's graphite foam technology. The estimate budget for the work was $165K funded by Petitioner's private funds. The period of performance was approximately six months. Appendix B of the SPP listed the subject invention S-124,650 as background intellectual property of ORNL." Essentially, the work under this SPP was to further develop and test the subject invention S-124,650.

On February 2, 2015, UT-Battelle and Petitioner executed a Task Order SPP (NFE-15-05568) under a Master SPP (NFE-14-05262) between the University of Tennessee and UT-Battelle. The Master SPP implemented the State of Tennessee RevV! Program, which offers research and development assistance to companies with manufacturing facilities in Tennessee. Therefore, the funding for this SPP was provided from the State of Tennessee as a "voucher" for Petitioner to work with ORNL. According to the scope of work, ORNL was to develop several prototypes of an IR emitter with graphite foam technology visible at distances significantly farther than current incandescent lighting, using FAA requirements. The prototypes were to be installed and tested at two airport sites in Tennessee and North Dakota. The funding from the State was $100K and period of performance was nine months.

As previously discussed, other than an NOA, no formal agreement was in place for the collaboration which gave rise to the subject invention, but it is DOE's view that Section 9 of the Federal Nonnuclear Energy Research and Development Act of 1974, as amended (42 U.S.C. 5908), is applicable here. Section 9 vests title in DOE to "any invention ...made or conceived in the course of or under any contract of the Administration." "Contract" is defined in Section 9 as including "any contract, grant, agreement, understanding or other arrangement, which includes research, development, or demonstration work . . . or subcontract." Thus; even though there was no formal agreement or exchange of funds, the collaboration under the NOA is potentially an "arrangement" thereby requiring a waiver of rights under Section 9 in order for Petitioner to obtain rights to these inventions. The invention was jointly made by the employees as a result of the interaction, thus UT-Battelle and Petitioner will each have undivided rights once the waiver is granted to Petitioner.

With respect to UT-Battelle's undivided rights in this invention, UT-Battelle has made documented offers to license the technology to Petitioner several times over the last few years, but received no response despite repeated attempts. UT-Battelle has recently executed a non-exclusive commercial license for its undivided interest to another third party who intends to also commercialize the invention. UT-Battelle has no objection to DOE's granting of this waiver to the Petitioner and believes such grant will enhance competition for the technology.

Grant of this waiver will provide a reasonable and necessary incentive to call forth private risk capital for the development and commercialization of the invention. Petitioner's business model is to leverage its connections in the aviation and maritime sectors and

bring to market a complete solution in the lighting marketplace. As Petitioner's request states, approximately $500K in direct investments and $500K of in-kind contributions have been made to the company to date. Advanced discussions are ongoing with several potential investors with the intent of providing substantial equity/convertible debt for future business operations.

Petitioner's experience and expertise will contribute to the development of the invention made under this arrangement. Petitioner is a team of aviation and business experts committed to address the LED lighting need for FAA purposes and has proposed an Association of Aviation Industry Operators and Manufacturers who will contribute capital and market ideas to the venture. Petitioner's employee co-inventor of the subject invention, as well as of the aforementioned patent, is a recognized subject matter expert in the aviation industry. He has extensive experience in management and operations, including airline safety, finance, budgeting, and strategic planning for a major airline and other private companies.

In addition, Petitioner has close business relationships with its strategic partners which will help mature the technology to provide a solution to the FAA's transition to LED technology in the airport runways both here and internationally. According to Petitioner's website, the technology has multiple applications in the global transportation marketplace. Petitioner predicts that initial sales of the core business segment of aviation this technology are conservatively projected to grow from $3.GM to $170M in the first five years. Additionally, the emitter technology will significantly expand the market for improved functionality of existing and future sensor technology.

Petitioner has agreed to accept the attached DOE waiver terms and conditions if the requested waiver is granted. Specifically, Petitioner agrees to abide by the conditions set forth at 35 U.S.C. §202-204 relating to the Government license, march-in rights, preference for U.S. industry, as well as U.S. Competitiveness.

Petitioner agrees that any products embodying any waived invention or produced through the use of any waived invention will be manufactured substantially in the United States, unless Petitioner can show to the satisfaction of DOE that it is not commercially feasible to do so. In the event DOE agrees to foreign manufacture, there will be a requirement that the Government's support of the technology be recognized in some appropriate manner, e.g., recoupment of the Government's investment, etc. Petitioner further agrees to make the above condition binding on any assignee or licensee or any entity otherwise acquiring rights to any waived invention, including subsequent assignees or licensees. Should

Petitioner or other such entity receiving rights in any waived invention undergo a change in ownership amounting to a controlling interest, then the waiver, assignment, license, or other transfer of rights in the waived invention is suspended until approved in writing by DOE.

Granting of the waiver should have little effect on competition since there are several technology options, this being one of many previously or yet-to-be developed in the marketplace. Thus, there should not be undue market concentration of Petitioner products. Furthermore, as stated above, UT- Battelle has already licensed its undivided rights in this invention non-exclusively to another company and believes the grant of this waiver will further enhance competition in this emerging area.

In view of the objectives and considerations set forth in 10 CFR 784.5, all of which have been considered, it is recommended that the requested waiver for worldwide patent rights in the subject inventions be granted.

Emily G. Schneider
Assistant Chief Counsel for
Intellectual Property

Date: 9/5/2017

Based on the foregoing Statement of Considerations and the representations in the attached Waiver Petition, it is determined that the interest of the United States and the general public will best be served by a waiver of U.S. and foreign patent rights, and therefore, the waiver is granted.

CONCURRENCE:

Jim Brodrick
Solid-State Lighting Technology
Manager Building Technologies
Office, EERE

Date

APPROVAL:

Brian Lally
Assistant General Counsel for
Technology Transfer and
Intellectual Property

Date