

NONREIMBURSABLE INTERAGENCY AGREEMENT
BETWEEN
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GLENN RESEARCH CENTER
AND
THE INFORMATION TECHNOLOGY LABORATORY
OF
THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
FOR
QUANTUM METROLOGY RESEARCH

ARTICLE 1. AUTHORITY AND PARTIES

The National Aeronautics and Space Administration Glenn Research Center, located at 21000 Brookpark Road, Cleveland, OH 44135 (hereinafter referred to as "NASA" or "NASA GRC") enters into this Interagency Agreement (hereinafter referred to as "IAA") in accordance with the National Aeronautics and Space Act, Other Transactions Authority (OTA), 51 U.S.C. § 20113(e). The National Institute of Standards and Technology, located at 100 Bureau Drive, Gaithersburg, MD 20899-0003 (hereinafter referred to as "NIST"), enters into this IAA in accordance with Organic Act, 15 USC 272(b)(8), (10) and 272(c)(2), (11) which permit NIST to develop a fundamental basis and methods for testing materials, mechanisms, structures, equipment, and systems, including those used by the Federal Government; to cooperate with other departments and agencies of the Federal Government, with industry, with State and local governments, with the governments of other nations and international organizations, and with private organizations in establishing standard practices, codes, specifications, and voluntary consensus standards; to test, calibrate, and certify standards and standard measuring apparatus; and to perform research on electromagnetic waves, including optical waves, and on properties and performance of electrical, electronic, and electromagnetic devices and systems and their essential materials, develop and maintain related standards, and disseminate standard signals through broadcast and other means. NASA and NIST may be individually referred to as a "Party" and collectively referred to as the "Parties."

ARTICLE 2. PURPOSE

This IAA shall be for the purpose of collaborating in the development of quantum metrology capabilities between quantum metrology experts at NASA GRC and NIST. NIST is in the process of developing quantum metrology for terrestrial quantum networks and NASA GRC is developing quantum metrology capabilities for flight networks. NIST will help to verify and validate the results of Metrology measurements taken at NASA GRC. The Parties will also work together towards understanding the needs and requirements for standardized quantum test devices, through regular monthly meetings in support of the review of quantum standardization/metrology documents. Devices-of-interest will be exchanged with NIST for verification and validation of metrology processes.

ARTICLE 3. RESPONSIBILITIES

A. NASA GRC intends to use reasonable efforts to:

1. Set up monthly meetings and share progress regarding component tests within the NASA Quantum Metrology Laboratory.
2. Provide feedback on, and/or work together with NIST to formulate quantum dictionaries and standardization documents.
3. Test NIST-developed "gold standard" devices and provide feedback and data to NIST for evaluation.
4. Temporarily provide quantum hardware to NIST for verification and validation of test results, subject to the Parties' completion of NASA Form 893 (NF 893).

B. NIST intends to use reasonable efforts to:

1. Temporarily provide NASA with hardware in the evaluation of metrology systems within the NASA Quantum Metrology Laboratory.
2. Provide NASA with quantum dictionaries and standardization documents for feedback.
3. Temporarily provide NASA with "standardized" quantum devices for evaluation within the NASA Quantum Metrology Laboratory. Engage with NASA Quantum Metrologists on specifications for standardized devices.
4. Provide NASA with data from the test of hardware borrowed from NASA.

ARTICLE 4. SCHEDULE AND MILESTONES

The planned major milestones for the activities defined in the "Responsibilities" Article are as follows:

- | | |
|--|-----------------------------|
| 1. NASA GRC and NIST to review metrology plans and results. | On or about December 2023. |
| 2. NASA GRC and NIST to provide input for quantum hardware standards review(s). | On or about December 2024. |
| 3. NASA GRC and NIST to provide feedback on verification and validation of hardware-of-interest, as necessary. | On or about September 2025. |
| 4. NASA GRC and NIST to return hardware and discuss mechanisms and opportunities for future collaboration. | On or about September 2025. |

ARTICLE 5. FINANCIAL OBLIGATIONS

There will be no transfer of funds between the Parties under this Agreement and each Party will fund its own participation. All activities under or pursuant to this Agreement are subject to the availability of funds and other necessary resources, and no provision of this Agreement shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act (31 U.S.C. § 1341).

ARTICLE 6. PRIORITY OF USE

Any schedule or milestone in this IAA is estimated based upon the Parties' current understanding of the projected availability of its respective goods, services, facilities, or equipment. In the event that either Party's projected availability changes, NASA or NIST, respectively, shall be given reasonable notice of that change, so that the schedule and milestones may be adjusted accordingly. The Parties agree that NASA's and NIST's use of its own goods, services, facilities, or equipment shall have priority over the use planned in this IAA.

ARTICLE 7. INTELLECTUAL PROPERTY RIGHTS - DATA RIGHTS

NASA and NIST agree that the information and data exchanged in furtherance of the activities under this IAA will be exchanged without use and disclosure restrictions unless required by national security regulations (e.g., classified information) or as otherwise provided in this IAA or agreed to by NASA and other Federal Agency for specifically identified information or data (e.g., information or data specifically marked with a restrictive notice).

ARTICLE 8. INTELLECTUAL PROPERTY RIGHTS - INVENTION AND PATENT RIGHTS

Unless otherwise agreed upon by NASA and NIST, custody and administration of inventions made (conceived or first actually reduced to practice) under this IAA will remain with the respective inventing Party. In the event an invention is made jointly by employees of the Parties (including by employees of a Party's contractors or subcontractors for which the U.S. Government has ownership), the Parties will consult and agree as to future actions toward establishment of patent protection for the invention.

ARTICLE 9. RELEASE OF GENERAL INFORMATION TO THE PUBLIC AND MEDIA

NASA or NIST may, consistent with Federal law and this Agreement, release general information regarding its own participation in this IAA as desired. Insofar as participation of the other Party in this IAA is included in a public release, NASA and NIST will seek to consult with each other prior to any such release, consistent with the Parties' respective policies.

Pursuant to Section 841(d) of the NASA Transition Authorization Act of 2017, Public Law 115-10 (the "NTAA"), NASA is obligated to publicly disclose copies of all agreements conducted pursuant to NASA's 51 U.S.C. §20113(e) authority in a searchable format on the NASA website within 60 days after the agreement is signed by the Parties. The Parties acknowledge that, if this IAA is entered into pursuant to NASA's 51 U.S.C. §20113(e) authority, this IAA will be disclosed, without redaction, in accordance with the NTAA. This IAA and its contents may be released by either Party at the releasing Party's discretion.

ARTICLE 10. TERM OF AGREEMENT

This IAA becomes effective upon the date of the last signature below ("Effective Date") and shall remain in effect until the completion of all obligations of both Parties hereto, or two (2) years from the Effective Date, whichever comes first.

ARTICLE 11. RIGHT TO TERMINATE

Either Party may unilaterally terminate this Agreement by providing thirty (30) calendar days written notice to the other Party.

ARTICLE 12. CONTINUING OBLIGATIONS

The rights and obligations of the Parties that, by their nature, would continue beyond the expiration or termination of this Agreement, e.g., "Intellectual Property Rights" and related clauses ["Financial Obligations" if reimbursable] shall survive such expiration or termination of this Agreement.

ARTICLE 13. POINTS OF CONTACT

The following personnel are designated as the Points of Contact between the Parties in the performance of this Agreement.

Management Points of Contact

NASA

Dawn Emerson
Chief, Communications and Intelligent
Systems Division
Mail Stop: 54-4
21000 Brookpark Road
Cleveland, OH 44135
Phone: 216-433-8901
dawn.c.emerson@nasa.gov

NIST

Ronald Boisvert
Chief, NIST Applied and Computational
Mathematics Division
100 Bureau Drive
Gaithersburg, MD 20899-0003
Phone: 301-975-3812
ronald.boisvert@nist.gov

Technical Points of Contact

NASA

Evan Katz
Research Engineer
Mail Stop: 77-1
21000 Brookpark Road
Cleveland, OH 44135
Phone: 216-433-6557
evan.j.katz@nasa.gov

NIST

Thomas Gerrits
Physicist
100 Bureau Drive
Gaithersburg, MD 20899-0003
Phone: 301-975-6712
thomas.gerrits@nist.gov

ARTICLE 14. DISPUTE RESOLUTION

All disputes concerning questions of fact or law arising under this IAA shall be referred by the claimant in writing to the appropriate person identified in this IAA as the "Points of Contact." The persons identified as the "Points of Contact" for NASA and NIST will consult and attempt to resolve all issues arising from the implementation of this IAA. If they are unable to come to agreement on any issue, the dispute will be referred to the signatories to this IAA, or their designees, for joint resolution after the Parties have separately documented in writing clear reasons for the dispute. As applicable, disputes will be resolved pursuant to The Department of the Treasury's Intragovernmental Transaction Guide (Treasury Financial Manual, Vol. 1, Chapter 2, Part 4700, Appendix 10 (hereinafter, the "Intragovernmental Transaction Guide")).

ARTICLE 15. MODIFICATIONS

Any modification to this IAA shall be executed, in writing, and signed by an authorized representative of NASA and the NIST.

ARTICLE 16. APPLICABLE LAW

U.S. Federal law governs this IAA for all purposes, including, but not limited to, determining the validity of the IAA, the meaning of its provisions, and the rights, obligations, and remedies of the Parties.

ARTICLE 17. LOAN OF GOVERNMENT PROPERTY

The Parties shall enter into a NASA Form 893, Loan of NASA Equipment, for NASA equipment loaned to NIST.

ARTICLE 18. SIGNATORY AUTHORITY

Approved and authorized on behalf of each Party by:

NATIONAL AERONAUTICS AND
SPACE ADMINISTRATION
GLENN RESEARCH CENTER

THE NATIONAL INSTITUTE OF
STANDARDS AND TECHNOLOGY



BY: _____
Michael J. Barrett
Director, Space Flight Systems

BY: _____
James A. St. Pierre
Acting Director, NIST, Information
Technology Laboratory

DATE: _____

DATE: 9/11/2023