

Statement by Submitter

I, Mridul Nandi, of Indian Statistical institute, 203 B.T. Road , Kolkata 700108, India, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as ORANGE, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check at least one of the following):

- ✓ I do not hold and do not intend to hold any patent or patent application with a claim which may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as ORANGE;
- ✓ to the best of my knowledge, the practice of the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as ORANGE, may be covered by the following U.S. and/or foreign patents:
 - **SG patent no: 194203 "Devices for Computer-Based Generating of a Mixing Matrix for Cryptographic processing of Data, Encrypting Devices, Methods for Computer-Based Generating of a Mixing Matrix for Cryptographic Processing of Data and Encrypting Methods"**

- I do hereby declare that, to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of my submitted cryptosystem, reference implementation or optimized implementations: none.

I do hereby acknowledge and agree that my submitted cryptosystem will be provided to the public for review and will be evaluated by NIST, and that it might not be selected for standardization by NIST. I further acknowledge that I will not receive financial or other compensation from the U.S. Government for my submission. I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications which may cover my cryptosystem, reference implementation or optimized implementations. I also acknowledge and agree that the U.S. Government may, during the public review and the evaluation process, and, if my submitted cryptosystem is selected for standardization, during the lifetime of the standard, modify my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability).

I acknowledge that NIST will announce any selected cryptosystem(s) and proceed to publish the draft standards for public comment I do hereby agree to provide the statements required by Sections 2.4.2 and 2.4.3, below, for any patent or patent application identified to cover the practice of my cryptosystem, reference implementation or optimized implementations and the right to use such implementations for the purposes of the public review and evaluation process.

I acknowledge that, during the lightweight crypto evaluation process, NIST may remove my cryptosystem from consideration for standardization. If my cryptosystem (or the derived cryptosystem) is removed from consideration for standardization or withdrawn from consideration by all submitter(s) and owner(s), I understand that rights granted and assurances made under Sections 2.4.1, 2.4.2 and 2.4.3, including use rights of the reference and optimized implementations, may be withdrawn by the submitter(s) and owner(s), as appropriate.

Signed: MNandi

Title: Mr.

Date: March 4, 2019

Place: Kolkata

Statement by Submitter

I, Bishwajit Chakraborty, of Indian Statistical institute, 203 B.T. Road , Kolkata 700108, India, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as ORANGE, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check at least one of the following):

- ✓ I do not hold and do not intend to hold any patent or patent application with a claim which may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as ORANGE;
- ✓ to the best of my knowledge, the practice of the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as ORANGE, may be covered by the following U.S. and/or foreign patents:

– **SG patent no: 194203 "Devices for Computer-Based Generating of a Mixing Matrix for Cryptographic processing of Data, Encrypting Devices, Methods for Computer-Based Generating of a Mixing Matrix for Cryptographic Processing of Data and Encrypting Methods"**

- I do hereby declare that, to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of my submitted cryptosystem, reference implementation or optimized implementations: none.

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Signed: Bishwajit Chakraborty

Title: Mr.

Date: 04th March 2019

Place: KOLKATA

Statement by Reference/Optimized/Additional Implementations Owner(s)

I, Bishwajit Chakraborty, of Indian Statistical institute, 203 B.T. Road , Kolkata 700108, India, am the owner or authorized representative of the owner of the submitted reference implementation, optimized and additional implementations and hereby grant the U.S. Government and any interested party the right to reproduce, prepare derivative works based upon, distribute copies of, and display such implementations for the purposes of the lightweight cryptography public review and evaluation process, and implementation if the corresponding cryptosystem is selected for standardization and as a standard, notwithstanding that the implementations may be copyrighted or copyrightable.

Signed: *Bishwajit Chakraborty*

Title: *Mr.*

Date: *04th March 2019*

Place: *KOLKATA*



I, Lim Jui, of 71 Nanyang Drive, #03-01 NTU Innovation Center S638075, am the authorized representative of the owner Nanyang Technological University of the following patent: **SG patent No: 194203 "Devices for Computer-Based Generating of a Mixing Matrix for Cryptographic Processing of Data, Encrypting Devices, Methods for Computer-Based Generating of a Mixing Matrix for Cryptographic Processing of Data and Encrypting Methods"**, and do hereby commit and agree to grant to any interested party on a worldwide basis, if the cryptosystem known as "Orange" is selected for standardization, in consideration of its evaluation and selection by NIST, a non-exclusive license for the purpose of implementing the standard (check one):

- without compensation and under reasonable terms and conditions that are demonstrably free of any unfair discrimination, OR
- under reasonable terms and conditions that are demonstrably free of any unfair discrimination.

I further do hereby commit and agree to license such party on the same basis with respect to any other patent application or patent hereafter granted to me, or owned or controlled by me, that is or may be necessary for the purpose of implementing the standard.

I further do hereby commit and agree that I will include, in any documents transferring ownership of each patent and patent application, provisions to ensure that the commitments and assurances made by me are binding on the transferee and any future transferee.

I further do hereby commit and agree that these commitments and assurances are intended by me to be binding on successors-in-interest of each patent and patent application, regardless of whether such provisions are included in the relevant transfer documents.

I further do hereby grant to the U.S. Government, during the public review and the evaluation process, and during the lifetime of the standard, a nonexclusive, nontransferable, irrevocable, paid-up worldwide license solely for the purpose of modifying my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability) for incorporation into the standard.

Signed:  **Dr. Lim Jui**
 Chief Executive Officer
 Nanyang Technological University-NTUitive Pte. Ltd.

Title: CEO, Nanyang Technological University-NTUitive Pte Ltd
 Date: **11 MAR 2019**

