I, Jeffrey Hoffstein, of 353 Slater Avenue, Providence, RI 02906, do hereby declare that the
cryptosystem, reference implementation, or optimized implementations that I have submitted,
known as pqNTRUSign, is my own original work, or if submitted jointly with others, is the original
work of the joint submitters.

I further declare that:

- to the best of my knowledge, the practice of the cryptosystem, reference implementation,
or optimized implementations that I have submitted, known as pqNTRUSign, may be
covered by the following U.S. and/or foreign patents:
  - Ring-based digital signature and authentication method and apparatus, U.S.
    Patent publication No.: WO2002009348 A3
  - Digital signature and authentication method and apparatus, U.S. Patent
    publication number: US7913088 B2

- 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:

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.D.2 and 2.D.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 post-quantum algorithm 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.D.1, 2.D.2 and 2.D.3, including use rights of the reference and
optimized implementations, may be withdrawn by the submitter(s) and owner(s), as appropriate.
Signed: [Handwritten signature]
Title: Professor of Mathematics, Brown University
Date: [Handwritten date]
Place: Providence, R.I.
I, William Whyte, of 235 Clafin St, Belmont, MA 02478, USA, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as pqNTRUSign, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that:

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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.D.2 and 2.D.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.

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Signed: William Whyte
Title: CTO, Onboard Security
Date: 2017-11-22
Place: Wilmington, MA
I, William Whyte, of 187 Ballardvale st. suite A202, Wilmington MA 01887, U.S., am the owner or authorized representative of the owner (print full name, if different than the signer) of the following patent(s) and/or patent application(s):

- Ring-based digital signature and authentication method and apparatus, U.S. Patent publication No.: WO2002009348 A3

and do hereby commit and agree to grant to any interested party on a worldwide basis, if the cryptosystem known as pqNTRUSign 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, nontransferrable, irrevocable, paid-up worldwide license solely for the purpose of modifying my submitted cryptosystem’s specifications (e.g., to protect against a newly 11 discovered vulnerability) for incorporation into the standard.

Signed: William Whyte
Title: CTO, Onboard Security
Date: 2017-11-22
Place: Wilmington, MA
I, Zhenfei Zhang, 187 Ballardvale st. Suite A202, Wilmington MA 01887, U.S., do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as pqNTRUSign, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that:

- to the best of my knowledge, the practice of the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as pqNTRUSign, may be covered by the following U.S. and/or foreign patents:
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I, Zhenfei Zhang, 187 Ballardvale st. suite A202, Wilmington MA 01887, U.S., am the owner or authorized representative of the owner of the submitted reference implementation and optimized 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 post-quantum algorithm 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:

Title: Senior Research Scientist, Onboard Security

Date: Nov 30, 2017

I, ____ (print submitter’s full name) ____, of ____ (print full postal address) ______, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as pqNTRUSign, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that:

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Signed: Cong Chen
Title: Research Engineer
Date: 11/08/2017
Place: Onboard security, Wilmington, MA
I, Zhenfei Zhang, 187 Ballardvale st. suite A202, Wilmington MA 01887, U.S., am the owner or authorized representative of the owner (print full name, if different than the signer) of the submitted reference implementation and optimized 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 post-quantum algorithm 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: [Signature]

Title: Director of Cryptographic Research, Onboard Security

Date: May 1, 2018

Place: 187 Ballardvale st. Wilmington MA 01887, U.S.