

Statement by Reference/Optimized Implementations' Owner

I, Alessandro Barenghi, Milano, Italy, 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: Alessandro Barenghi

Title: Professor

Date: 31 May 2023

Place: Milano, Italy

A handwritten signature in black ink, appearing to read "Alessandro Barenghi". The signature is written in a cursive, flowing style.

Statement by Reference/Optimized Implementations' Owner

I, Luke Beckwith, Fairfax, VA, USA, 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: Luke Beckwith

Title: Mr.

Date: 31 May 2023

Place: Fairfax, VA, USA

A handwritten signature in black ink that reads "Luke Beckwith". The signature is written in a cursive style with a large, prominent 'L' and 'B'.

Statement by Reference/Optimized Implementations' Owner

I, Kris Gaj, Fairfax, VA, USA, 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: Kris Gaj

Title: Professor

Date: 31 May 2023

Place: Fairfax, VA, USA

Handwritten signature 'KGaj' in black ink.

Statement by Reference/Optimized Implementations' Owner

I, Kamyar Mohajerani, Fairfax, VA, USA, 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: Kamyar Mohajerani

Title: Graduate Research Assistant

Date: 31 May 2023

Place: Fairfax, VA, USA

A handwritten signature in black ink that reads "Kamyar Mohajerani". The signature is written in a cursive style with a large initial "K" and "M".

Statement by Reference/Optimized Implementations' Owner

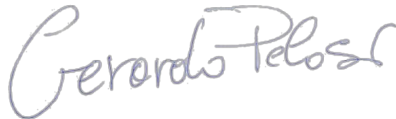
I, Gerardo Pelosi, Milano, Italy, am the owner or authorized representative of the owner (print full name, if different than the signer) of the submitted reference implementation and optimized implementations and hereby grant the U.S. Government and any interested party the right to reproduce, prepare 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: Gerardo Pelosi

Title: Professor

Date: 31 May 2023

Place: Milano, Italy

A handwritten signature in blue ink that reads "Gerardo Pelosi". The signature is written in a cursive style with a large, prominent initial 'G'.

Statement by Reference/Optimized Implementations' Owner

I, Robert Wallace, Fairfax, VA, USA, 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: Robert Wallace

Title: Student

Date: 31 May 2023

Place: Fairfax, VA, USA

A handwritten signature in cursive script that reads "Robert Wallace".

Statement by Each Submitter

I, Marco Baldi, of Università Politecnica delle Marche, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
- to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of **LESS**, reference implementation or optimized implementations: ----- (describe and enumerate or state “none” if applicable) -----.

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.

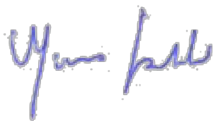
I acknowledge that, during the post-quantum algorithm evaluation process, NIST may remove my cryptosystem from consideration for standardization. If my cryptosystem (or the derived cryptosystem) is removed from consideration for standardization or withdrawn from consideration by all submitter(s) and 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: Marco Baldi

Title: Professor

Date: 31 May 2023

Place: Ancona, Italy



Statement by Each Submitter

I, Alessandro Barenghi, of Politecnico di Milano, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
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Signed: Alessandro Barenghi

Title: Professor

Date: 31 May 2023

Place: Milano, Italy



Statement by Each Submitter

I, Luke Beckwith, of George Mason University, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
- to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of **LESS**, reference implementation or optimized implementations: _____ (describe and enumerate or state “none” if applicable) _____.

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).

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Signed: Luke Beckwith

Title: Mr.

Date: 31 May 2023

Place: Fairfax, VA, USA



Statement by Each Submitter

I, Jean-François Biasse, of University of South Florida, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
- to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of **LESS**, reference implementation or optimized implementations: ----- (describe and enumerate or state “none” if applicable) -----.

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).

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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: Jean-François Biasse

Title: Associate Professor

Date: 31 May 2023

Place: Tampa, FL, USA



Statement by Each Submitter

I, Andre Esser, of Technology Innovation Institute, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
- to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of **LESS**, reference implementation or optimized implementations: ----- (describe and enumerate or state "none" if applicable) -----.

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: Andre Esser

Title: Dr.

Date: 31 May 2023

Place: Abu Dhabi, UAE



Statement by Each Submitter

I, Kris Gaj, of George Mason University, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
- to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of **LESS**, reference implementation or optimized implementations: ----- (describe and enumerate or state "none" if applicable) -----

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).

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Signed: Kris Gaj

Title: Professor

Date: 31 May 2023

Place: Fairfax, VA, USA



Statement by Each Submitter

I, Kamyar Mohajerani, of George Mason University, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
- to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of **LESS**, reference implementation or optimized implementations: ----- (describe and enumerate or state "none" if applicable) -----

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Signed: Kamyar Mohajerani

Title: Graduate Research Assistant

Date: 31 May 2023

Place: Fairfax, VA, USA



Statement by Each Submitter

I, Gerardo Pelosi, of Politecnico di Milano, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
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Signed: Gerardo Pelosi

Title: Professor

Date: 31 May 2023

Place: Milano, Italy



Statement by Each Submitter

I, Edoardo Persichetti, of Università “Sapienza”, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
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Signed: Edoardo Persichetti

Title: Assistant Professor

Date: 31 May 2023

Place: Rome, Italy



Statement by Each Submitter

I, Markku-Juhani Saarinen, of PQShield Ltd, Prama House, 267 Banbury Rd, Summertown, Oxford OX2 7HT, UK, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

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Signed: Markku-Juhani Saarinen
Title: Staff Cryptography Architect
Date: 31 May 2023
Place: Oxford, UK


M J SAARINEN

Statement by Each Submitter

I, Paolo Santini, of Università Politecnica delle Marche, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

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Signed: Paolo Santini

Title: Dr.

Date: 31 May 2023

Place: Ancona, Italy



Statement by Each Submitter

I, Robert Wallace, of George Mason University, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**, is my own original work, or if submitted jointly with others, is the original work of the joint submitters. I further declare that (check one):

- I do not hold and do not intend to hold any patent or patent application with a claim or that could be amended to include a claim that may cover the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as **LESS**;
- to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of **LESS**, reference implementation or optimized implementations: _____ (describe and enumerate or state “none” if applicable) _____.

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: Robert Wallace

Title: Student

Date: 31 May 2023

Place: Fairfax, VA, USA

