2.D.1 Statement by Each Submitter

I, Hiroki Furue, of 7-3-1, Hongo, Bunkyo-ku, Tokyo, 113-8656, Japan, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as QR-UOV, 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 QR-UOV;* ***OR*** *(check one or both of the following):*

- ☐ *to the best of my knowledge, the practice of the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as ____* ***(print name of cryptosystem)*** *____, may be covered by the following U.S. and/or foreign patents: _____* ***(describe and enumerate or state "none" if applicable)*** *_____ ;*

- ☐ *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: _____* ***(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: Hiroki Furue
Title: Ph.D. student
Date: February 27, 2023
Place: 7-3-1, Hongo, Bunkyo-ku, Tokyo, 113-8656, Japan

2.D.1 Statement by Each Submitter

I, Yasuhiko Ikematsu, of 744, Motooka, Nishi-ku, Fukuoka, 819-0395, Japan, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as QR-UOV, 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 QR-UOV;* ***OR*** *(check one or both of the following):*

- ☐ *to the best of my knowledge, the practice of the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as* ____ ***(print name of cryptosystem)*** ____, *may be covered by the following U.S. and/or foreign patents:* _____ ***(describe and enumerate or state "none" if applicable)*** _____ ;

- ☐ *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:* _____ ***(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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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: Yasuhiko Ikematsu
Title: Assistant Professor
Date: February 27, 2023
Place: 744, Motooka, Nishi-ku, Fukuoka, 819-0395, Japan

2.D.1 Statement by Each Submitter

I, Fumitaka Hoshino, of 1-1-1, Manabino, Nagayo-cho, Nishisonogi-gun, Nagasaki, 851-2195, Japan, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as QR-UOV, 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 QR-UOV;* ***OR*** *(check one or both of the following):*

- ☐ *to the best of my knowledge, the practice of the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as* ____ ***(print name of cryptosystem)*** ____, *may be covered by the following U.S. and/or foreign patents:* _____ ***(describe and enumerate or state "none" if applicable)*** _____ ;

- ☐ *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:* _____ ***(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: Fumitaka Hoshino
Title: Professor
Date: February 27, 2023
Place: 1-1-1, Manabino, Nagayo-cho, Nishisonogi-gun, Nagasaki, 851-2195, Japan

2.D.1 Statement by Each Submitter

I, Tsuyoshi Takagi, of 7-3-1, Hongo, Bunkyo-ku, Tokyo, 113-8656, Japan do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as QR-UOV, 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 QR-UOV;* ***OR*** *(check one or both of the following):*

- ☐ *to the best of my knowledge, the practice of the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as* ____ ***(print name of cryptosystem)***____, *may be covered by the following U.S. and/or foreign patents:* _____ ***(describe and enumerate or state "none" if applicable)***_____ ;

- ☐ *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:* _____ ***(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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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: Tsuyoshi Takagi
Title: Professor
Date: February 27, 2023
Place: 7-3-1, Hongo, Bunkyo-ku, Tokyo, 113-8656, Japan

2.D.1 Statement by Each Submitter

I, Kan Yasuda, of 3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585, Japan, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as QR-UOV, 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 QR-UOV;* ***OR*** *(check one or both of the following):*

- ☐ *to the best of my knowledge, the practice of the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as* ____ ***(print name of cryptosystem)*** ____, *may be covered by the following U.S. and/or foreign patents:* _____ ***(describe and enumerate or state "none" if applicable)*** _____ ;

- ☐ *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:* _____ ***(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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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: /Kan Yasuda/
Title: Principal Research Scientist
Date: February 27, 2023
Place: 3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585, Japan

2.D.1 Statement by Each Submitter

I, Toshiyuki Miyazawa, of 3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585, Japan, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as QR-UOV, 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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- ☐ *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: _____* ***(describe and enumerate or state "none" if applicable)*** *_____.*

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Signed: Toshiyuki Miyazawa
Title: Senior Research Engineer, Supervisor
Date: February 27, 2023
Place: 3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585, Japan

2.D.1 Statement by Each Submitter

I, _____ Tsunekazu Saito _____, of 3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585, Japan, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as QR-UOV, 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: 斎藤順平
Title: Senior Research Engineer
Date: February 27, 2023
Place: 3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585, Japan

2.D.1 Statement by Each Submitter

I, Akira Nagai, of 3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585, Japan, do hereby declare that the cryptosystem, reference implementation, or optimized implementations that I have submitted, known as QR-UOV, 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: Akira Nagai
Title: Senior Research Engineer
Date: February 27, 2023
Place: 3-9-11, Midori-cho, Musashino-shi, Tokyo, 180-8585, Japan

2.D.3 Statement by Reference/Optimized Implementations' Owner(s)

The following must also be included:

I, Fumitaka Hoshino, 1-1-1, Manabino, Nagayo-cho, Nishisonogi-gun, Nagasaki, 851-2195, Japan, 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: Fumitaka Hoshino
Title: Professor
Date: February 27, 2023
Place: 1-1-1, Manabino, Nagayo-cho, Nishisonogi-gun, Nagasaki, 851-2195, Japan