January 8, 2021

Laura J. Duggan, Ph.D.
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Siemens Healthcare Diagnostics Inc.
500 GBC Drive
Newark, DE 19714

Device:	Dimension EXL SARS-CoV-2 IgG (CV2G)
Company:	Siemens Healthcare Diagnostics Inc.
Indication:	Qualitative and semi-quantitative detection of IgG antibodies to SARS-CoV-2 in human serum and plasma (dipotassium EDTA and lithium heparin) using the Dimension EXL integrated chemistry system with LOCI module.[1] Intended for use as an aid in identifying individuals with an adaptive immune response to SARS-CoV-2, indicating recent or prior infection. Emergency use of this test is limited to authorized laboratories.
Authorized Laboratories:	Laboratories certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA), 42 U.S.C. 263a, that meet requirements to perform moderate or high complexity tests.

Dear Dr. Duggan:

This letter is in response to your[2] request that the Food and Drug Administration (FDA) issue an Emergency Use Authorization (EUA) for emergency use of your product,[3] pursuant to Section 564 of the Federal Food, Drug, and Cosmetic Act (the Act) (21 U.S.C. §360bbb-3).

On February 4, 2020, pursuant to Section 564(b)(1)(C) of the Act, the Secretary of the Department of Health and Human Services (HHS) determined that there is a public health emergency that has a significant potential to affect national security or the health and security of United States citizens living abroad, and that involves the virus that causes COVID-19. Pursuant to Section 564 of the Act, and on the basis of such determination, the Secretary of HHS then declared that circumstances exist justifying the authorization of emergency use of *in vitro*

[1] This includes the Dimension EXL with LOCI module or Dimension EXL 200 Integrated Chemistry Systems.
[2] For ease of reference, this letter will use the term "you" and related terms to refer to Siemens Healthcare Diagnostics Inc.
[3] For ease of reference, this letter will use the term "your product" to refer to the Dimension EXL SARS-CoV-2 IgG (CV2G) for the indication identified above.

diagnostics for detection and/or diagnosis of the virus that causes COVID-19 subject to the terms of any authorization issued under Section 564(a) of the Act.[4]

FDA considered the totality of scientific information available in authorizing the emergency use of your product for the indication above. A summary of the performance information FDA relied upon is included in the "Dimension EXL integrated chemistry system SARS-CoV-2 IgG (CV2G)" Instructions for Use.

Having concluded that the criteria for issuance of this authorization under Section 564(c) of the Act are met, I am authorizing the emergency use of your product, described in the Scope of Authorization of this letter (Section II), subject to the terms of this authorization.

I. Criteria for Issuance of Authorization

I have concluded that the emergency use of your product meets the criteria for issuance of an authorization under Section 564(c) of the Act, because I have concluded that:

1. The SARS-CoV-2 can cause a serious or life-threatening disease or condition, including severe respiratory illness, to humans infected by this virus;

2. Based on the totality of scientific evidence available to FDA, it is reasonable to believe that your product may be effective in diagnosing recent or prior infection with SARS-CoV-2 by identifying individuals with an adaptive immune response to the virus that causes COVID-19, and that the known and potential benefits of your product when used for such use, outweigh the known and potential risks of your product; and

3. There is no adequate, approved, and available alternative to the emergency use of your product.[5]

II. Scope of Authorization

I have concluded, pursuant to Section 564(d)(1) of the Act, that the scope of this authorization is limited to the indication above.

Authorized Product Details

Your product is a chemiluminescent immunoassay intended for the qualitative and semi-quantitative detection of IgG antibodies to SARS-CoV-2 in human serum and plasma (dipotassium EDTA and lithium heparin) using the Dimension EXL with LOCI Module integrated chemistry system (includes the Dimension EXL Operator's Guide). The product is intended for use as an aid in identifying individuals with an adaptive immune response to SARS-CoV-2, indicating recent or prior infection. At this time, it is unknown for how long antibodies

[4] U.S. Department of Health and Human Services, *Determination of a Public Health Emergency and Declaration that Circumstances Exist Justifying Authorizations Pursuant to Section 564(b) of the Federal Food, Drug, and Cosmetic Act, 21 U.S.C.* § *360bbb-3*. 85 FR 7316 (February 7, 2020).
[5] No other criteria of issuance have been prescribed by regulation under Section 564(c)(4) of the Act.

persist following infection and if the presence of antibodies confers protective immunity. Semi-quantitative results from your product should not be interpreted as an indication or degree of immunity or protection from infection.

Your product is a homogeneous, sandwich chemiluminescent immunoassay based on Luminescent Oxygen Channeling Immunoassay (LOCI). The LOCI reagents include two synthetic bead reagents and a biotinylated anti-Human IgG antibody. The first bead reagent (Sensibeads) is coated with streptavidin and contains photosensitizer dye. The second bead reagent (Chemibeads) is coated with anti-FITC (Fluorescein isothiocyanate) antibody and contains chemiluminescent dye. For this assay the anti-FITC antibody coated-Chemibeads are predecorated with fluoresceinated spike S1 receptor binding domain (RBD) antigen. The patient sample is incubated with Chemibeads. After 1 minute the biotinylated antibody is added to form bead-SARS-CoV-2 antigen-biotinylated antibody sandwiches. After incubation, Sensibeads are added and bind to the biotin to form bead-pair immunocomplexes. Illumination of the complex at 680 nm generates singlet oxygen from Sensibeads which diffuses into the Chemibeads, triggering a chemiluminescent reaction. The resulting signal, measured at 612 nm and calculated as Ind Units, is a direct function of the amount of SARS-CoV-2 IgG antibody present in the sample.

If the assay is being used in qualitative mode, the Dimension EXL CV2G assay cutoff analyte value is 1000 QUAL units and is used to distinguish between positive and negative:

- Positive Results: A specimen that gives an analyte value greater than or equal to 1000 QUAL units is interpreted as positive.
- Negative Results: A specimen that gives analyte values less than 1000 QUAL units is interpreted as negative. Either the specimen does not contain detectable antibodies or antibodies are present in concentrations below the cutoff value for this assay.

If the assay is being used in semi-quantitative mode, numeric values are given between 1,000 and 140,000 Ind units

Your product requires authorized calibrators (Dimension Vista/Dimension EXL SARS-CoV-2 IgG calibrator (COV2G CAL/CV2G CAL)) which are not included with your product but are available from you with the “SARS-CoV-2 IgG calibrator (COV2G CAL/CV2G CAL)” package insert. The Dimension Vista/Dimension EXL SARS-CoV-2 IgG calibrator (COV2G CAL/CV2G CAL) is a frozen 5-level product with human plasma base, human plasma base containing SARS-CoV-2 Spike S1 antibody in one concentration and bovine serum albumin containing SARS-CoV-2 Spike S1 antibody in three concentrations.

Your product also requires the following authorized external positive and negative controls (Dimension Vista/Dimension EXL SARS-CoV-2 IgG Quality Control (COV2G QC/CV2G QC)) which are not included with your product but are available from you with the “SARS-CoV-2 IgG Quality Control (COV2G QC/CV2G QC)” package insert, or other authorized controls (as may be requested under Condition L below). Controls are run as outlined in the “Dimension EXL integrated chemistry system SARS-CoV-2 IgG (CV2G)” Instructions for Use and the “SARS-CoV-2 IgG Quality Control (COV2G QC/CV2G QC)” product insert:

- Negative Control: Human plasma base non-reactive for IgG antibodies to SARS-CoV-2.
- Positive Control: Bovine serum albumin containing SARS CoV-2 Spike S1 Antibody.

Your product also requires the use of additional authorized materials and authorized ancillary reagents that are not included with your product and are described in the Instructions for Use.

Your above described product is authorized to be accompanied with labeling entitled "Dimension EXL integrated chemistry system SARS-CoV-2 IgG (CV2G)" Instructions for Use (available at https://www.fda.gov/medical-devices/coronavirus-disease-2019-covid-19-emergency-use-authorizations-medical-devices/vitro-diagnostics-euas) and the following product-specific information pertaining to the emergency use, which is required to be made available to healthcare providers and recipients:

- Fact Sheet for Healthcare Providers: Siemens Healthcare Diagnostics Inc. - Dimension EXL SARS-CoV-2 IgG (CV2G) assay
- Fact Sheet for Recipients: Siemens Healthcare Diagnostics Inc. - Dimension EXL SARS-CoV-2 IgG (CV2G) assay

The above described product, when accompanied by the Instructions for Use (identified above) and the two Fact Sheets (collectively referenced as "authorized labeling"), is authorized to be distributed to and used by authorized laboratories under this EUA, despite the fact that it does not meet certain requirements otherwise required by applicable federal law.

I have concluded, pursuant to Section 564(d)(2) of the Act, that it is reasonable to believe that the known and potential benefits of your product, when used consistent with the Scope of Authorization of this letter (Section II), outweigh the known and potential risks of your product.

I have concluded, pursuant to Section 564(d)(3) of the Act, based on the totality of scientific evidence available to FDA, that it is reasonable to believe that your product may be effective in diagnosing recent or prior infection with SARS-CoV-2 by identifying individuals with an adaptive immune response to the virus that causes COVID-19, when used consistent with the Scope of Authorization of this letter (Section II), pursuant to Section 564(c)(2)(A) of the Act.

FDA has reviewed the scientific information available to FDA, including the information supporting the conclusions described in Section I above, and concludes that your product (as described in the Scope of Authorization of this letter (Section II) meets the criteria set forth in Section 564(c) of the Act concerning safety and potential effectiveness.

The emergency use of your product under this EUA must be consistent with, and may not exceed, the terms of this letter, including the Scope of Authorization (Section II) and the Conditions of Authorization (Section IV). Subject to the terms of this EUA and under the circumstances set forth in the Secretary of HHS's determination under Section 564(b)(1)(C) of the Act described above and the Secretary of HHS's corresponding declaration under Section 564(b)(1) of the Act, your product is authorized for the indication above.

III. Waiver of Certain Requirements

I am waiving the following requirements for your product during the duration of this EUA:

- Current good manufacturing practice requirements, including the quality system requirements under 21 CFR Part 820 with respect to the design, manufacture, packaging, labeling, storage, and distribution of your product, but excluding Subpart H (Acceptance Activities, 21 CFR 820.80 and 21 CFR 820.86), Subpart I (Nonconforming Product, 21 CFR 820.90), and Subpart O (Statistical Techniques, 21 CFR 820.250).

IV. Conditions of Authorization

Pursuant to Section 564(e) of the Act, I am establishing the following conditions on this authorization:

Siemens Healthcare Diagnostics Inc. (You) and Authorized Distributor(s)[6]

A. Your product must comply with the following labeling requirements under FDA regulations: the intended use statement (21 CFR 809.10(a)(2), (b)(2)); adequate directions for use (21 U.S.C. 352(f)), (21 CFR 809.10(b)(5), (7), and (8)); appropriate limitations on the use of the device including information required under 21 CFR 809.10(a)(4); and any available information regarding performance of the device, including requirements under 21 CFR 809.10(b)(12).

B. You and authorized distributor(s) must make your product available with the authorized labeling to authorized laboratories.

C. You and authorized distributor(s) must make available on your website(s) the Fact Sheet for Healthcare Providers and the Fact Sheet for Recipients.

D. You and authorized distributor(s) must inform authorized laboratories and relevant public health authorities of this EUA, including the terms and conditions herein, and any updates made to your product, and authorized labeling.

E. Through a process of inventory control, you and authorized distributor(s) must maintain records of the authorized laboratories to which they distribute your product and number they distribute.

F. You and authorized distributor(s) must collect information on the performance of your product. You must report to FDA any suspected occurrence of false positive and false negative results and significant deviations from the established performance characteristics of the product of which you become aware.

[6] "Authorized Distributor(s)" are identified by you, Siemens Healthcare Diagnostics Inc., in your EUA submission as an entity allowed to distribute your product.

G. You and authorized distributor(s) are authorized to make available additional information relating to the emergency use of your product that is consistent with, and does not exceed, the terms of this letter of authorization.

H. You and authorized distributor(s) must make available the calibration material (Dimension Vista/Dimension EXL SARS-CoV-2 IgG calibrator (COV2G CAL/CV2G CAL)) with the "SARS-CoV-2 IgG Calibrator (COV2G CAL/CV2G CAL)" package insert and control material (Dimension Vista/Dimension EXL SARS-CoV-2 IgG Quality Control (COV2G QC/CV2G QC)) with the "SARS-CoV-2 IgG Quality Control (COV2G QC/CV2G QC)" package insert or other authorized calibration or control materials (as may be requested under Condition L below), at the same time as your product.

Siemens Healthcare Diagnostics Inc. (You)

I. You must notify FDA of any authorized distributor(s) of your product, including the name, address, and phone number of any authorized distributor(s).

J. You must provide authorized distributor(s) with a copy of this EUA and communicate to authorized distributor(s) any subsequent amendments that might be made to this EUA and its authorized accompanying materials (e.g., Fact Sheets).

K. You must comply with the following requirements pursuant to FDA regulations: Subpart H (Acceptance Activities, 21 CFR 820.80 and 21 CFR 820.86), Subpart I (Nonconforming Product, 21 CFR 820.90), and Subpart O (Statistical Techniques, 21 CFR 820.250).

L. You may request changes to this EUA for your product, including to the Scope of Authorization (Section II in this letter) or to the authorized labeling, including requests to make available additional authorized labeling specific to an authorized distributor. Such additional labeling may use another name for the product but otherwise must be consistent with the authorized labeling, and not exceed the terms of authorization of this letter. Any request for changes to this EUA should be submitted to the Division of Microbiology (DMD)/Office of Health Technology 7 (OHT7)-Office of In Vitro Diagnostics and Radiological Health (OIR)/Office of Product Evaluation and Quality (OPEQ)/Center for Devices and Radiological Health (CDRH) and require appropriate authorization from FDA prior to implementation.

M. You must evaluate the performance and assess traceability[7] of your product with any FDA-recommended reference material(s) or established panel(s) of characterized clinical specimens. After submission to and concurrence with the data by FDA, you must update your labeling to reflect the additional testing. Such labeling updates will be made in consultation with, and require concurrence of, DMD/OHT7-

[7] Traceability refers to tracing analytical sensitivity/reactivity back to an FDA-recommended reference material. FDA may request, for example, that you perform this study in the event that we receive reports of adverse events concerning your product.

OIR/OPEQ/CDRH.

N. You must have a process in place to track adverse events, including any occurrence of false results and report to FDA pursuant to 21 CFR Part 803.

O. You must have lot release procedures and the lot release procedures, including the study design and statistical power, must ensure that the assays released for distribution have the clinical and analytical performance claimed in the authorized labeling.

P. If requested by FDA, you must submit lot release procedures to FDA, including sampling protocols, testing protocols, and acceptance criteria, that you use to release lots of your product for distribution in the U.S. If such lot release procedures are requested by FDA, you must provide it within 48 hours of the request.

Q. If requested by FDA, you must participate in a National Cancer Institute study on the evaluation of your product. After submission to and concurrence with the data by FDA you will update your product labeling to reflect the additional testing. Such labeling updates will be made in consultation with, and require concurrence of, DMD/OHT7-OIR/OPEQ/CDRH.

R. If requested by FDA, you must periodically submit new lots for testing at the National Cancer Institute, or by another government agency designated by FDA, to confirm continued performance characteristics across lots. In addition, FDA may request records regarding lot release data for assays to be distributed or already distributed. If such lot release data are requested by FDA, you must provide it within 48 hours of the request.

S. You must complete the agreed upon real-time stability study for your product. After submission to and concurrence with the data by FDA, you must update your labeling to reflect the additional testing. Such labeling updates must be made in consultation with, and require concurrence of, DMD/OHT7-OIR/OPEQ/CDRH.

T. You must further complete the agreed upon interference study for your product. After submission to and concurrence with the data by FDA, you must update your labeling to reflect the additional testing within 30 calendar days of the date of this letter. Such labeling updates must be made in consultation with, and require concurrence of, DMD/OHT7-OIR/OPEQ/CDRH.

Authorized Laboratories

U. Authorized laboratories using your product must include with test result reports, all authorized Fact Sheets. Under exigent circumstances, other appropriate methods for disseminating these Fact Sheets may be used, which may include mass media.

V. Authorized laboratories must use your product as outlined in the authorized labeling. Deviations from the authorized procedures, including the authorized instrument, authorized clinical specimen types, authorized control materials, authorized other

ancillary reagents and authorized materials required to use your product are not permitted.

W. Authorized laboratories that receive your product must notify the relevant public health authorities of their intent to run your product prior to initiating testing.

X. Authorized laboratories using your product must have a process in place for reporting test results to healthcare providers and relevant public health authorities, as appropriate.

Y. Authorized laboratories must collect information on the performance of your product and report to DMD/OHT7-OIR/OPEQ/CDRH (via email: CDRH-EUA-Reporting@fda.hhs.gov) and to you (Siemens Healthineers Technical Support at (800) 441-9250) any suspected occurrence of false positive or false negative results and significant deviations from the established performance characteristics of your product of which they become aware.

Z. All laboratory personnel using your product must be appropriately trained in automated immunoassay techniques and use appropriate laboratory and personal protective equipment when handling this kit, and use your product in accordance with the authorized labeling. All laboratory personnel using the assay must also be trained in and be familiar with the interpretation of results of the product.

Siemens Healthcare Diagnostics Inc. (You), Authorized Distributor(s) and Authorized Laboratories

AA. You, authorized distributors, and authorized laboratories using your product will ensure that any records associated with this EUA are maintained until otherwise notified by FDA. Such records will be made available to FDA for inspection upon request.

Conditions Related to Printed Matter, Advertising and Promotion

BB. All descriptive printed matter, advertising, and promotional materials relating to the use of your product shall be consistent with the authorized labeling, as well as the terms set forth in this EUA and meet the requirements set forth in section 502(a), (q)(1), and (r) of the Act and FDA implementing regulations.

CC. No descriptive printed matter, advertising, or promotional materials relating to the use of your product may represent or suggest that this test is safe or effective for the detection of SARS-CoV-2.

DD. All descriptive printed matter, advertising, and promotional materials relating to the use of your product shall clearly and conspicuously state that:

- This test has not been FDA cleared or approved but has been authorized for emergency use by FDA under an EUA for use by authorized laboratories;

- This test has been authorized only for detecting the presence of IgG antibodies against SARS-CoV-2, not for any other viruses or pathogens; and

- The emergency use of this test is only authorized for the duration of the declaration that circumstances exist justifying the authorization of emergency use of *in vitro* diagnostics for detection and/or diagnosis of COVID-19 under Section 564(b)(1) of the Federal Food, Drug and Cosmetic Act, 21 U.S.C. § 360bbb-3(b)(1), unless the declaration is terminated or authorization is revoked sooner.

The emergency use of your product as described in this letter of authorization must comply with the conditions and all other terms of this authorization.

V. Duration of Authorization

This EUA will be effective until the declaration that circumstances exist justifying the authorization of the emergency use of *in vitro* diagnostics for detection and/or diagnosis of COVID-19 is terminated under Section 564(b)(2) of the Act or the EUA is revoked under Section 564(g) of the Act.

Sincerely,

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RADM Denise M. Hinton
Chief Scientist
Food and Drug Administration

Enclosure