August 3, 2022

ScreenPoint Medical B.V.
% Robin Barwegen
Head of Regulatory and Quality Affairs
Mercator II, 7th floor, Teornooiveld 300
Nijmegen, Gelderland 6525EC
NETHERLANDS

Re: K221347
Trade/Device Name: Transpara 1.7.2
Regulation Number: 21 CFR 892.2090
Regulation Name: Radiological computer assisted detection and diagnosis software
Regulatory Class: Class II
Product Code: QDQ
Dated: May 5, 2022
Received: May 9, 2022

Dear Robin Barwegen:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. Although this letter refers to your product as a device, please be aware that some cleared products may instead be combination products. The 510(k) Premarket Notification Database located at https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfpmn/pmn.cfm identifies combination product submissions. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Part

801); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803) for devices or postmarketing safety reporting (21 CFR 4, Subpart B) for combination products (see https://www.fda.gov/combination-products/guidance-regulatory-information/postmarketing-safety-reporting-combination-products); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820) for devices or current good manufacturing practices (21 CFR 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to https://www.fda.gov/medical-devices/medical-device-safety/medical-device-reporting-mdr-how-report-medical-device-problems.

For comprehensive regulatory information about medical devices and radiation-emitting products, including information about labeling regulations, please see Device Advice (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance) and CDRH Learn (https://www.fda.gov/training-and-continuing-education/cdrh-learn). Additionally, you may contact the Division of Industry and Consumer Education (DICE) to ask a question about a specific regulatory topic. See the DICE website (https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/contact-us-division-industry-and-consumer-education-dice) for more information or contact DICE by email (DICE@fda.hhs.gov) or phone (1-800-638-2041 or 301-796-7100).

Sincerely,

For

Michael D. O'Hara, Ph.D.
Deputy Director
DHT8C: Division of Radiological Imaging
and Radiation Therapy Devices
OHT8: Office of Radiological Health
Office of Product Evaluation and Quality
Center for Devices and Radiological Health

Enclosure

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

# Indications for Use

Form Approved: OMB No. 0910-0120
Expiration Date: 06/30/2023
*See PRA Statement below.*

510(k) Number *(if known)*

K221347

Device Name
Transpara® 1.7.2

Indications for Use *(Describe)*

Transpara® software is intended for use as a concurrent reading aid for physicians interpreting screening full-field digital mammography exams and digital breast tomosynthesis exams from compatible FFDM and DBT systems, to identify regions suspicious for breast cancer and assess their likelihood of malignancy. Output of the device includes locations of calcifications groups and soft-tissue regions, with scores indicating the likelihood that cancer is present, and an exam score indicating the likelihood that cancer is present in the exam. Patient management decisions should not be made solely on the basis of analysis by Transpara®.

Type of Use *(Select one or both, as applicable)*

☒ Prescription Use (Part 21 CFR 801 Subpart D) ☐ Over-The-Counter Use (21 CFR 801 Subpart C)

**CONTINUE ON A SEPARATE PAGE IF NEEDED.**

This section applies only to requirements of the Paperwork Reduction Act of 1995.

***DO NOT SEND YOUR COMPLETED FORM TO THE PRA STAFF EMAIL ADDRESS BELOW.***

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*"An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB number."*

K221347

# 510(k) Summary Transpara®

This 510(k) summary of safety and effectiveness information is prepared in accordance with the requirements of 21 CFR § 807.92.

## 1. Submitter

**Manufacturer:**

ScreenPoint Medical B.V.

Mercator II, 7th floor

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Mercator II, 7th floor, Toernooiveld 300, 6525 EC Nijmegen, Netherlands

**Date:**

August 3, 2022

# 2. Device

| | |
|---|---|
| Device trade name | Transpara® 1.7.2 |
| Device | Radiological Computer Assisted Detection and Diagnosis Software |
| Classification regulation | 21 CFR 892.2090 |
| Panel | Radiology |
| Device class | II |
| Product code | QDQ |
| Submission type | Traditional 510(k) |

# 3. Legally marketed predicate device

| | |
|---|---|
| Device trade name | Transpara® 1.7.0 |
| Legal Manufacturer | ScreenPoint Medical B.V. |
| Device | Radiological Computer Assisted Detection and Diagnosis Software |
| Classification regulation | 21 CFR 892.2090 |
| Panel | Radiology |
| Device class | II |
| Product code | QDQ |
| Clearance number | K210404 |

# 4. Device description

*Transpara*® is a software only application designed to be used by physicians to improve interpretation of digital mammography and digital breast tomosynthesis. The system is intended to be used as a concurrent reading aid to help readers with detection and characterization of potential abnormalities suspicious for breast cancer and to improve workflow. 'Deep learning' algorithms are applied to FFDM images and DBT slices for recognition of suspicious calcifications and soft tissue lesions (including densities, masses, architectural distortions, and asymmetries). Algorithms are trained with a large database of biopsy-proven examples of breast cancer, benign abnormalities, and examples of normal tissue.

*Transpara*® offers the following functions which may be used at any time during reading (concurrent use):

a) Computer aided detection (CAD) marks to highlight locations where the device detected suspicious calcifications or soft tissue lesions.
b) Decision support is provided by region scores on a scale ranging from 0-100, with higher scores indicating a higher level of suspicion.
c) Links between corresponding regions in different views of the breast, which may be utilized to enhance user interfaces and workflow.
d) An exam score which categorizes exams on a scale of 1-10 with increasing likelihood of cancer. The score is calibrated in such a way that approximately 10 percent of mammograms in a population of mammograms without cancer falls in each category.

Results of *Transpara*® are computed in processing server which accepts mammograms or DBT exams in DICOM format as input, processes them, and sends the processing output to a destination using the DICOM protocol. Common destinations are medical workstations, PACS and RIS. The system can be configured using a service interface. Implementation of a user interface for end users in a medical workstation is to be provided by third parties.

# 5. Indications for use

Transpara® is a software medical device for use in a healthcare facility or hospital with the following indications for use:

Transpara® software is intended for use as a concurrent reading aid for physicians interpreting screening full-field digital mammography exams and digital breast tomosynthesis exams from compatible FFDM and DBT systems, to identify regions suspicious for breast cancer and assess their likelihood of malignancy. Output of the device includes locations of calcifications groups and soft-tissue regions, with scores indicating the likelihood that cancer is present, and an exam score indicating the likelihood that cancer is present in the exam. Patient management decisions should not be made solely on the basis of analysis by Transpara®.

Intended user population

Intended users of *Transpara*® are physicians qualified to read screening mammography exams and digital breast tomosynthesis exams.

Intended patient population

The device is intended to be used in the population of women undergoing screening mammography and digital breast tomosynthesis.

Warnings and precautions

Transpara® is an adjunct tool and not intended to replace a physicians' own review of a mammogram. Decisions should not be made solely based on analysis by Transpara®.

# 6. Predicate device comparison

The indication for use of Transpara® 1.7.2 is similar to that of the predicate device. Both devices are intended for concurrent use by physicians interpreting breast images to help them with localizing and characterizing abnormalities. The devices are not intended as a replacement for the review of a physician or their clinical judgement.

The overall design of Transpara® 1.7.2 is the same as that of the predicate device. Both versions detect and characterize findings in radiological breast images and provide information about the presence, location, and characteristics of the findings to the user in a similar way. There are differences in the algorithmic components, which have changed to improve detection accuracy for DBT. Support for Giotto FFDM and General Electric (DBT) has been added.

Changes do not raise different questions of safety and effectiveness of the device when used as labeled.

# 7. Summary of non-clinical performance data

In the design and development of Transpara® 1.7.2, ScreenPoint applied the following voluntary FDA recognized standards and guidelines:

| Standard ID | Standard Title | FDA Recognition # |
|---|---|---|
| IEC 62366-1 Edition 1.0 2015-02 | Medical devices - Part 1: Application of usability engineering to medical devices [Including CORRIGENDUM 1 (2016)] | 5-114 |
| ISO, 14155 Second edition 2011-02-01, | Clinical investigation of medical devices for human subjects - Good clinical practice | 2-205 |
| ISO 14971:2019 | Medical Devices - Application Of Risk Management To Medical Devices | 5-125 |
| IEC 62304:2015 | Medical Device Software - Software Life Cycle Processes | 13-79 |
| IEC 82304-1: 2016 | Health software - Part 1: General requirements for product safety | 13-97 |

| | | |
|---|---|---|
| ISO, 15223-1 Third Edition 2016-11-01, | Medical devices - Symbols to be used with medical device labels labelling and information to be supplied - Part 1: General requirements | 5-117 |

The following guidance documents were used to support this submission:

- Guidance for Industry and FDA Staff - Guidance for the Content of Premarket Submissions for Software Contained in Medical Devices (Issued on May 11, 2005)
- Guidance for Industry and Food and Drug Administration Staff - Computer-Assisted Detection Devices Applied to Radiology Images and Radiology Device Data – Premarket Notification [510(k)] Submissions (Issued on July 3, 2012)
- Guidance for Industry and FDA Staff - Clinical Performance Assessment: Considerations for Computer-Assisted Detection Devices Applied to Radiology Images and Radiology Device Data in Premarket notification [510(k)] Submissions (Issued on January 2020)
- Guidance for Industry and Food and Drug Administration Staff - The 510(k) Program: Evaluating Substantial Equivalence in Premarket Notifications [510(k)] (Issued on July 28 2014)
- Guidance for Industry and Food and Drug Administration Staff - Unique Device Identification: Direct Marking of Devices (Issued on November 17, 2017)

Transpara® 1.7.2 is a software-only device. The level of concern for the device is determined as Moderate Level of Concern.

**Non-clinical performance tests**

Verification testing was conducted, which consisted of software unit testing, software integration testing and software system testing. The verification tests showed that the software application satisfied the software requirements.

Standalone performance tests were conducted to demonstrate substantial equivalence with the predicate device. For these tests an independent dataset was used, which was acquired from multiple centers and had not been used for development of the algorithms. This test set contained 2D and 3D mammograms acquired with devices from different manufacturers (2D: Hologic, GE, Philips, Siemens, Giotto and Fujifilm, 3D: Hologic, Siemens, General Electric and Fujifilm), representative for breast imaging practices performing screening and diagnostic assessment, collected from multiple clinical centers in seven EU countries and the US. For the inclusion of the normal exams in the test set the majority of exams had a normal follow-up of at least one year.

The test set consisted of 10,690 exams, including 9,218 non-cancer exams, and 1,472 exams with cancer. An overview is presented in table 1. In total, 56.5% of biopsy-proven cancer regions in the datasets of 2D and 3D are mass, 26.1% calcifications, 4.0% architectural distortions and asymmetries, and 13.3% are reported as a combination of morphological findings. The main histological cancer types are invasive non-specific type (47.1%), ductal carcinoma in situ (17.2%), invasive lobular carcinoma (6.7%), and other/unknown (28.9%). The median age of the women in the dataset was 56 years old (interquartile range: 49-64).

*Table 1: Data used for evaluation of stand-alone performance.*

| | Number of Exams | Normal | Benign | Cancer |
|---|---|---|---|---|
| FFDM | 5,867 | 4,841 | 149 | 877 |
| DBT | 4,823 | 3,988 | 240 | 595 |
| Total | 10,690 | 8,829 | 389 | 1,472 |

Exam based sensitivity for cancer detection in the test set was computed by taking the fraction of cancers that were correctly localized in it least one view (MLO or CC). False positive rates were computed in exams without cancer, by dividing the number of regions detected per image by the number of images. For 2D, the sensitivity is 95.0% (93.5-96.4) at 0.30 FP/image. For DBT, sensitivity is 93.2% (91.0-95.1) at 0.34 FP/volume. ROC analysis was also performed. The AUC is 0.945 (0.935-0.954) for 2D and 0.945 (0.936-0.954) for DBT.

Based on standalone testing it was concluded that Transpara 1.7.2 breast cancer detection performance for 2D and 3D mammograms of compatible devices is non-inferior to the performance of the predicate device Transpara 1.7.0.

# 8. Conclusions

The data presented in this 510(k) includes all required information to support the review by FDA. Standalone performance tests with FFDM and DBT demonstrate that Transpara® 1.7.2 achieves non-inferior detection performance compared to the predicate device.

ScreenPoint has applied a risk management process in accordance with FDA recognized standards to identify, evaluate, and mitigate all known hazards related to Transpara® 1.7.2. These hazards may occur when accuracy of diagnosis is potentially affected, causing either false-positives or false-negatives. All identified risks are effectively mitigated and it can be concluded that the residual risk is outweighed by the benefits.

Considering all data in this submission, the data provided in this 510(k) application supports the safe and effective use of Transpara® 1.7.2 for its indications for use and substantial equivalence to the predicate device.