November 25, 2024

ScreenPoint Medical B.V.
Robin Barwegen
VP of QA/RA
Mercator II, 7th floor, Toernooiveld 300
Nijmegen, Gelderland 6525 EC
NETHERLANDS

Re: K241831
Trade/Device Name: Transpara (2.1.0)
Regulation Number: 21 CFR 892.2090
Regulation Name: Radiological Computer Assisted Detection And Diagnosis Software
Regulatory Class: Class II
Product Code: QDQ
Dated: October 25, 2024
Received: October 25, 2024

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 (the 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 available 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.

Additional information about changes that may require a new premarket notification are provided in the FDA guidance documents entitled "Deciding When to Submit a 510(k) for a Change to an Existing Device" (https://www.fda.gov/media/99812/download) and "Deciding When to Submit a 510(k) for a Software Change to an Existing Device" (https://www.fda.gov/media/99785/download).

Your device is also subject to, among other requirements, the Quality System (QS) regulation (21 CFR Part 820), which includes, but is not limited to, 21 CFR 820.30, Design controls; 21 CFR 820.90, Nonconforming product; and 21 CFR 820.100, Corrective and preventive action. Please note that regardless of whether a change requires premarket review, the QS regulation requires device manufacturers to review and approve changes to device design and production (21 CFR 820.30 and 21 CFR 820.70) and document changes and approvals in the device master record (21 CFR 820.181).

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 Part 803) for devices or postmarketing safety reporting (21 CFR Part 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 Part 4, Subpart A) for combination products; and, if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR Parts 1000-1050.

All medical devices, including Class I and unclassified devices and combination product device constituent parts are required to be in compliance with the final Unique Device Identification System rule ("UDI Rule"). The UDI Rule requires, among other things, that a device bear a unique device identifier (UDI) on its label and package (21 CFR 801.20(a)) unless an exception or alternative applies (21 CFR 801.20(b)) and that the dates on the device label be formatted in accordance with 21 CFR 801.18. The UDI Rule (21 CFR 830.300(a) and 830.320(b)) also requires that certain information be submitted to the Global Unique Device Identification Database (GUDID) (21 CFR Part 830 Subpart E). For additional information on these requirements, please see the UDI System webpage at https://www.fda.gov/medical-devices/device-advice-comprehensive-regulatory-assistance/unique-device-identification-system-udi-system.

Also, please note the regulation entitled, "Misbranding by reference to premarket notification" (21 CFR 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,

YANNA S. KANG -S

Yanna Kang, Ph.D.
Assistant Director
Mammography and Ultrasound Team
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: 07/31/2026
See PRA Statement below.

Submission Number *(if known)*

K241831

Device Name

Transpara (2.1.0)

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.

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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

Toernooiveld 300

6525 EC Nijmegen

Netherlands

www.screenpoint-medical.com

Contact person:

Robin Barwegen, VP of QA/RA

Office: +31 24 3030045 | +31 24 2020020

Mobile: +31 6 44077104

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

Date:

June 25, 2024

2. Device

Device trade name	Transpara 2.1.0
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 1.7.2
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	K221347

4. Device description

Transpara is a software only application designed to be used by physicians to improve interpretation of full-field digital mammography (FFMD) and digital breast tomosynthesis (DBT). Deep learning algorithms are applied to images 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 in the reading process, to improve detection and characterization of abnormalities and enhance workflow:

- AI findings for display in the images to highlight locations where the device detects suspicious calcifications or soft tissue lesions, along with region scores per finding on a scale ranging from 1-100, with higher scores indicating a higher level of suspicion.

- Links between corresponding regions in different views of the breast, which may be utilized to enhance user interfaces and workflow.
- An exam-based score which categorizes exams with increasing likelihood of cancer on a scale of 1-10 or in three risk categories labeled as ‘low’, ‘intermediate’ or ‘elevated’.

The concurrent use indication implies that it is up to the users to decide how to use Transpara in the reading process. Transpara functions can be used before, during or after visual interpretation of an exam by a user.

Results of Transpara are computed in a standalone processing appliance which accepts mammograms in DICOM format as input, processes them, and sends the processing output to a destination using the DICOM protocol in a standardized mammography CAD DICOM format. 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 or 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 2.1.0 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 2.1.0 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 FFDM and DBT. Furthermore, temporal comparison has been included to allow a comparison of the current exam with prior exams. In case prior exams are assessed, the suspicious regions on the current exam will be adjusted based on the comparison with prior exams.

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 2.1.0, ScreenPoint applied the following voluntary FDA recognized standards and guidelines:

Standard ID	Year / Edition	Standard Title	FDA Recognition #
IEC 62366-1	Edition 1.1 2020-06	Medical devices - Part 1: Application of usability engineering to medical devices	5-129
ISO 20417	First edition 2021-04 Corrected version 2021-12	Medical devices – Information to be supplied by the manufacturer	5-135
ISO 14971	Third Edition 2019-12	Medical Devices - Application Of Risk Management To Medical Devices	5-125
IEC 62304	Edition 1.1 2015-06	Medical Device Software - Software Life Cycle Processes	13-79
IEC 82304-1	Edition 1.0 2016-10	Health software - Part 1: General requirements for product safety	13-97

ISO 15223-1	Fourth edition 2021-07	Medical devices - Symbols to be used with information to be supplied by the manufacturer - Part 1: General requirements	5-134

The following guidance documents were used to support this submission:

ID	Year	Title
FDA-1997-D-0029	2002	General Principles of Software Validation
FDA-2011-D-0652	2014	The 510(k) Program: Evaluating Substantial Equivalence in Premarket Notifications [510(k)]
FDA-2015-D-5105	2016	Postmarket Management of Cybersecurity in Medical Devices
FDA-2011-D-0469	2016	Applying Human Factors and Usability Engineering to Medical Devices
FDA-2015-D-4852	2017	Design Considerations and Pre-market Submission Recommendations for Interoperable Medical Devices
FDA-2014-D-0456	2018	Appropriate Use of Voluntary Consensus Standards in Premarket Submissions for Medical Devices
FDA-2018-D-1329	2019	Recommended Content and Format of Non-Clinical Bench Performance Testing Information in Premarket Submissions
FDA-2016-D-1853	2021	Unique Device Identification System: Form and Content of the Unique Device Identifier (UDI)
FDA-2009-D-0593	2022	Computer-Assisted Detection Devices Applied to Radiology Images and Radiology Device Data - Premarket Notification [510(k)] Submissions
FDA-2009-D-0503	2022	Clinical Performance Assessment: Considerations for Computer-Assisted Detection Devices Applied to Radiology Images and Radiology Device Data in Premarket Notification (510(k)) Submissions
FDA-2019-D-1470	2022	Technical Performance Assessment of Quantitative Imaging in Radiological Device Premarket Submissions
FDA 2021-D-1158	2023	Cybersecurity in Medical Devices: Quality System Considerations and Content of Premarket Submissions
FDA-2021-D-0775	2023	Content of Premarket Submissions for Device Software Functions
FDA-2019-D-3598	2023	Off-The-Shelf Software Use in Medical Devices
FDA-2023-D-1030	2023	Cybersecurity in Medical Devices: Refuse to Accept Policy for Cyber Devices and Related Systems Under Section 524B of the FD&C Act
FDA-2021-D-0872	2023	Electronic Submission Template for Medical Device 510(k) Submissions

Transpara 2.1.0 is a software-only device. The recommended documentation level is Basic Documentation Level.

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 testset contained FFDM and DBT mammograms acquired with devices from different manufacturers (FFDM: Hologic, GE, Philips, Siemens, and Fujifilm, DBT: Hologic, Siemens, GE 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 testset consisted of 10,207 exams, including 1,350 exams with biopsy-proven cancer. An overview is presented in table 1. In the dataset for 2D images, 57% of the biopsy-proven cancer findings are characterized as soft tissue lesions, while 36% present with calcifications. The median diameter of the lesions is 16.34 mm. At the exam level, 44% of biopsy-proven cancer cases involve invasive ductal carcinoma, while 19% present only with ductal carcinoma in situ. For 3D images, 61% of the biopsy-proven cancer findings in the dataset are characterized as soft tissue lesions, while 34% present with calcifications. The median diameter of the lesions is 15.57 mm. At the exam level, 48% of biopsy-proven cancer cases involve invasive ductal carcinoma, while 17% present only with ductal carcinoma in situ.

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

	Number of Exams	**Normal**	**Benign**	**Cancer**
FFDM	5.730	4,830	150	750
DBT	4,477	3,757	120	600
Total	10,207	8,587	270	1,350

Exam based sensitivity for cancer detection in the testset was computed by taking the fraction of cancers that were correctly localized in at 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. The results are demonstrated in the table below.

Table 2: Results overall stand-alone performance Transpara – Sensitivity and Area under the ROC Curve (AUC)

	Sensitivity for Sensitive Mode (70% specificity)	**Sensitivity for Specific Mode (80% specificity)**	**Sensitivity for Elevated Risk (97% specificity)**	**Exam-based AUC**
FFDM	97.4% (96.3 - 98.5)	95.2% (93.7 - 96.7)	80.8% (78.0 - 83.6)	0.960 (0.953 - 0.966)
DBT	96.9% (95.5 - 98.3)	95.1% (93.3 - 96.8)	78.4% (75.1 - 81.7)	0.955 (0.947 - 0.963)

Additional performance testing for Transpara cancer detection consisted of the sets described in table 3. For each sub-analysis the AUC as well as the sensitivities at the most important operating points (70% specificity, 80% specificity, 97% specificity) was compared. The goal of these sub-analysis was to ensure that Transpara does not show any deviations in specific sub-groups.

Test Description	Subgroup	Total Number of Exams (FFDM / DBT pooled)	Non-cancer	Cancer
Ethnicity	White Non-Hispanic	529	728	89
	White Hispanic	324	255	69
	Black	351	253	37
	Turkish	189	149	27
	Asian	601	544	57
	Other	360	203	108
Age Groups	Above 50 years old	13024	11523	1498
	Below 50 years old	2845	2637	208
Lesion Size	Mass <20 mm	705	0	705
	Mass 20 - 50mm	573	0	573
	Mass >50mm	120	0	120
Radiological Lesion Subtypes	Mass	917	0	917
	Calcification Groups	541	0	541
	Architectural Distortion	663	0	663
	Asymmetries	52	0	52
Histology Subtypes	ILC	129	0	129
	IDC	432	0	432
	DCIS	183	0	183
Screening vs Diagnostic (DBT)	Screening	824	679	145
	Diagnostic	3,931	3,454	477
Breast Density	Low Density (BIRADS A + B)	5,154	4,582	572
	High Density (BIRADS C + D)	4,982	4,263	719

Table 3: Data used for sub-group analysis of stand-alone performance for Transpara Cancer Detection

The results for the analysis do not show any deviations for specific sub-groups. The performance in the sub-groups meets the algorithm requirements.

Transpara 2.1.0 comes with the introduction of Temporal Analysis. The testset for this feature consists of 5,724 exams, including 643 exams with biopsy-proven cancer. An overview is presented in table 4.

	Number of Exams	Normal	Benign	Cancer
FFDM	4,266	3,742	53	471
DBT	1,458	1,256	30	172
Total	5,724	4,998	83	643

Table 4: Data used for evaluation of stand-alone performance of Temporal Analysis

Exam based sensitivity for cancer detection in the testset with temporal analysis was computed by taking the fraction of cancers that were correctly localized in at 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. The results are demonstrated in the table below.

	Sensitivity for Sensitive Mode (70% specificity)	Sensitivity for Specific Mode (80% specificity)	Sensitivity for Elevated Risk (97% specificity)	Exam-based AUC
FFDM without TA	95.7% (93.7 - 97.6)	94.5% (92.3 - 96.7)	78.9% (75.0 - 82.8)	0.954 (0.941 - 0.965)
FFDM with TA	95.7% (93.7 - 97.6)	95.4% (93.4 - 97.4)	82.7% (79.1 - 86.4)	0.958 (0.946 - 0.969)
DBT without TA	94.6% (91.2 - 98.0)	91.0% (86.7 - 95.4)	67.1% (59.9 - 74.2)	0.935 (0.915 - 0.953)
DBT with TA	94.6% (91.2 - 98.0)	91.0% (86.7 - 95.4)	74.9% (68.3 - 81.4)	0.941 (0.921 - 0.958)

Table 5: Results overall stand-alone performance Transpara with and without Temporal Analysis – Sensitivity and Area under the ROC Curve (AUC), where TA = Temporal Analysis

Additional performance testing for Transpara cancer detection consisted of the sets described in table 3. For each sub-analysis the AUC is compared to Transpara without Temporal Analysis. The goal of these sub-analysis is to ensure that Transpara does not show any deviations in specific sub-groups.

Test Description	Subgroup	Total Number of Exams (FFDM / DBT pooled)	Non-cancer	Cancer
Prior Time Intervals	0.9 - 1.5 years	3,152	2,731	421
	1.5 - 6 years	2,489	2,267	222
Age Groups	Under 50 years old	909	876	33
	Between 50 - 65 years old	2,796	2,532	264
	Above 65 years old	1,375	1,173	202
Single vs Multi-prior	Single prior	1,526	1,306	220
	Multi priors	1,526	1,306	220
Breast Density	Low Density (BIRADS A + B)	2,915	2,573	342
	High Density (BIRADS C + D)	2,728	2,425	303
Modality of Prior Type for DBT current	FFDM	533	519	14
	Synthetic	927	761	166
Manufacturer Type	Single Manufacturer	3,213	2,852	361
	Cross Manufacturer	1,053	943	110

Table 6: Data used for sub-group analysis of stand-alone performance for Transpara with Temporal Analysis

The results for the analysis do not show any deviations for specific sub-groups. The performance in the sub-groups meets the algorithm requirements.

Based on standalone testing without temporal comparison it was concluded that Transpara 2.1.0 breast cancer detection performance for FFDM and DBT mammograms of compatible devices is non-inferior and superior to the performance of the predicate

device Transpara 1.7.2. With temporal comparison the performance of the device is superior to the performance without temporal comparison.

The table below lists the manufacturers compatible with Transpara processing of exams without temporal comparison.

Table 7 Compatible Manufacturers for standalone image processing

	Standalone	
	FFDM	**DBT**
Compatible manufacturers	Hologic, GE, Philips, Siemens, and Fujifilm	Hologic, Siemens, GE and Fujifilm

The table below outlines the manufacturers compatible with Transpara for temporal comparison, including various combinations of mammography types.

Table 8 Compatible Manufacturer for temporal comparison

Current	Prior
Siemens FFDM	Hologic FFDM, Siemens FFDM
GE FFDM	Hologic FFDM, GE FFDM
Hologic FFDM	Hologic FFDM, Siemens FFDM, GE FFDM
Hologic DBT + SM	Hologic DBT + SM, Hologic FFDM

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 2.1.0 achieves non-inferior and superior 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 2.1.0. 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.

As described above, the subject device, Transpara 2.1.0, and the predicate device have the same intended use. While there are differences in technological characteristics, these differences were evaluated with performance testing as described and the technological differences do not raise different questions of safety and effectiveness. Therefore, the results of the testing demonstrate that the subject device, Transpara 2.1.0, is substantially equivalent to the predicate device.