Post-Market Clinical Study Plan

Contrast volume reduction during PCI with the use of Dynamic Coronary Roadmap

Security Classification: **Confidential**

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Identification of study device

The Dynamic Coronary Roadmap is developed by Philips Medical Systems Nederland B.V., a Philips Healthcare company. The proposed Dynamic Coronary Roadmap is a new software package that assists the imaging of the coronaries during coronary interventions.

Study design

This is a prospective, non-randomized, unblinded, observational, single-center study.

A non-randomized study design has been chosen to get first insights in contrast reduction with the use of Dynamic Coronary Roadmap. This study will serve as a pilot study to power a pivotal study at a later stage.

The results of the study population will be compared with retrospective data generated before the Dynamic Coronary Roadmap was installed.

Objectives

Primary objective:
To collect data on the amount of contrast used during PCI with the aid of Dynamic Coronary Roadmap to define a possible contrast reduction. The study will serve as a pilot for potential larger and/or multi-center follow-up studies to define a possible contrast reduction claim.
Secondary objective(s):

- Assessing radiation usage during PCI with the aid of Dynamic Coronary Roadmap
- Collecting patient demographics to further define the study population
- Assessing procedure efficiency
- Collecting procedural information to further define the study population

Primary and secondary endpoints

The primary endpoint in this study will be the amount of contrast volume used during the PCI procedure.

Secondary endpoints will be the radiation dosage, procedure efficiency, study population and procedural information. This information will help to define the study population and/or procedures better and will be used to design a pivotal trial at a later stage.

Main inclusion criteria

- Subject undergoing a percutaneous coronary intervention
- Subject 18 years of age or older, or of legal age to give informed consent per state or national law
-

Main exclusion criteria

- Subject undergoing an emergency treatment
- Primary angioplasty for acute ST segment elevation myocardial infarction.
- Subject with contrast allergies
- Subject with severe kidney disease (e-GFR < 40 by Modification of Diet in Renal Disease (MDRD)/Cockcroft Gault clearance formula and/or upon decision by investigator)
- Subject participates in a potentially confounding drug or device trial during the course of the study.
- Prisoners, people who cannot legally give consent, pregnant women and breastfeeding women
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No. of subjects

It is expected that 45 subjects (see section 5 Statistical considerations) are necessary to collect sufficient data for the evaluation of the objectives of this clinical study. The enrollment period is expected to last for 4 months. There are no criteria for the amount of subjects treated with Dynamic Coronary Roadmap R1.1 versus R2.0, since a differentiating effect on this study's endpoints is not expected.

Study procedures

Patients will receive standard medical treatment for their cardiac condition. During routine procedures, the physician may take angiograms for diagnosis which also serve as reference for device navigation. These angiograms will be automatically processed in the Dynamic Coronary Roadmap software and displayed as an overlay on the fluoroscopy for navigation support. In case a balloon catheter is used, the physician may

take cine images when deflating the balloon as part of the standard care. These images can automatically be enhanced with the software and displayed. There is no follow up required after the procedure.

Phase 1: This is the phase where the physicians and study personnel can get used to the device and its capabilities. This phase serves to gain experience with the device and define workflow changes for the second phase. The use of Dynamic Coronary Roadmap makes these workflow changes possible and necessary in order to reduce the amount of contrast volume. It is estimated that 20 patients are necessary to gain enough experience and assess the workflow improvements.

Phase 2: This phase will focus on the contrast volume reduction. The defined workflow changes from phase 1 will be implemented in order to reduce the use of contrast volume. The minimal amount of contrast and timing of dosing will be defined. All other doses need to be avoided, as long as clinically acceptable. It is estimated that 25 patients are necessary to gain enough data to support the primary endpoint. This dataset will be compared with retrospective data from 25 patients that were treated without Dynamic Coronary Roadmap, preferably in the same timeframe.

Follow up

Subjects are enrolled in the study for the duration of the interventional procedure. No follow-up is required per protocol. Patient will be followed according to regular clinical standard of care.

Duration of the study

The total duration of the study is expected to take approximately 4 months.

1. DEVICE DESCRIPTION

1.1. Summary description of the study device

The Dynamic Coronary Roadmap is developed by Philips Medical Systems Nederland B.V., a Philips Healthcare company. The proposed Dynamic Coronary Roadmap is a new software package that assists the imaging of the coronaries during coronary interventions.

Dynamic Coronary Roadmap Release 1.1 is a released software package (K170130) that can be used to support the navigation of interventional devices in the coronary arteries. Dynamic Coronary Roadmap allows the users to see a roadmap of the coronary anatomy displayed on live fluoroscopy. Dynamic Coronary Roadmap uses image registration techniques to provide an overlay of the coronary arteries (automatically derived from the coronary angiogram) on top of the live fluoroscopy (see Figure 1). It is intended to provide a Dynamic Coronary Roadmap for guidance and navigation of devices, providing additional confidence in the procedure, and possibly reducing the need for additional contrast puffs.

Dynamic Coronary Roadmap Release 2.0 introduces the FFR / iFR Roadmap feature. FFR/iFR Roadmap visualizes the position of the pressure wire and the coronary artery on an X-ray image at the moment that an intravascular blood pressure measurement was performed as well as the intravascular blood pressure measurement values themselves. Dynamic Coronary Roadmap Release 2.0 does not have 510(k) clearance yet.

Figure 1: On the left a standard fluoroscopy image and on the right a Dynamic Coronary Roadmap image with a coronary roadmap superimposed on a fluoroscopy image.

The study device includes the "Coronary tools" Dynamic Coronary Roadmap R1.1 and StentBoost Live R1.1 [1] to permit full identification. Dynamic Coronary Roadmap R1.1 will be upgraded to R2.0 after FDA clearance of the FFR/iFR Roadmap feature.

[1] Note: StentBoost Live 1.1 is not used in the context of this post market study. Therefore it is not mentioned further in this post market study plan

The manufacturer of the study device is:
Philips Medical Systems Nederland B.V., *a Philips Healthcare company*
Veenpluis 4-6
5684 PC Best
The Netherlands

1.2. Intended Purpose

The sections below contain the information for Dynamic Coronary Roadmap. The only difference between the intended use of Dynamic Coronary Roadmap 1.1 and 2.0 is the FFR / iFR Roadmap feature. The changes due to the addition of the FFR / iFR Roadmap feature have been marked in *italic font*. Consequently,

- Normal text = Dynamic Coronary Roadmap 1.1; and
- Normal text + *italic text* = Dynamic Coronary Roadmap 2.0.

1.2.1. Product Description Dynamic Coronary Roadmap [1]

Dynamic Coronary Roadmap is a software medical device intended to provide a real-time and dynamic angiographic roadmap of coronary arteries.
The angiographic roadmap is automatically generated from previously acquired diagnostic coronary angiograms during the same procedure.
Dynamic Coronary Roadmap overlays the angiographic roadmap on live 2D fluoroscopic images, thereby assisting the physician in navigating devices, e.g. (guide) wires, catheters, through the coronary arteries.
Dynamic Coronary Roadmap is to be used in combination with a Philips interventional X-ray system.
When also used in conjunction with a compatible intravascular blood pressure measurement system, Dynamic Coronary Roadmap offers an FFR/iFR Roadmap feature which combines the information of the blood pressure within a coronary artery with an X-ray image of the pressure wire within that coronary artery, acquired when the pressure measurement was performed.

1.2.2. Indications for Use / Medical Purpose

Dynamic Coronary Roadmap is intended to assist the physician during percutaneous coronary interventions in correlating the device position to the coronary vasculature, by providing a motion compensated overlay of this coronary vasculature.

The FFR/iFR Roadmap feature is intended to assist the physician during percutaneous coronary interventions in relating the intravascular blood pressure measurement to its anatomical location. FFR/iFR roadmap visualizes the position of the pressure wire and the coronary artery on an X-ray image at the moment that an intravascular blood pressure measurement was performed as well as the intravascular blood pressure measurement values themselves.

Dynamic Coronary Roadmap is suitable for use with the entire adult human population.

1.2.3. Intended Operator Profile

Dynamic Coronary Roadmap is intended to be used and operated by: adequately trained, qualified, and authorized healthcare professionals who have understanding of the safety information and emergency procedures as defined by local laws and regulations for radiation workers and staff.

1.2.4. Clinical environment

Dynamic Coronary Roadmap is intended to be used in the cath lab, interventional suite or hybrid operating room. The software medical device is connected to a Philips interventional X-ray system. Additionally it may also be connected to a compatible intravascular blood pressure measurement system.

1.2.5. General safety and effectiveness

To facilitate safe and effective operation of the system by a trained healthcare professional, instructions for use are provided as part of the device labeling.

Dynamic Coronary Roadmap is a software medical device and does not come in contact with a human subject.

The study device manual contains safety precautions and handling of the study device.

Note: the FFR / iFR Roadmap feature is disabled by means of a license in Dynamic Coronary Roadmap R1.1. The FFR / iFR Roadmap feature is enabled after upgrade to Dynamic Coronary Roadmap R2.0.

1.3. Necessary training and experience needed to use the research device

Dynamic Coronary Roadmap is intended to be used and operated by adequately trained, qualified, and authorized healthcare professionals who have understanding of the safety information and emergency procedures as defined by local laws and regulations for radiation workers and staff. Training on the study device is needed and will be provided by Philips upon delivery of the device. This training will be documented and filed in the Investigator Site File.
Note: as ON/ OFF of the study device is not automatically coupled to the ON/OFF of the Allura system, the user will be trained and will get a dedicated version of the IFU. There are no other differences between the study device and the "regular Coronary Tools".

1.4. Materials that will be in contact with tissues or body fluids

No materials of the study device will be in contact with tissue or body fluids.

1.5. Device Traceability

The study device includes Dynamic Coronary Roadmap R1.1 (will be upgraded to R2.0 after FDA approval) and Stentboost Live R1.1 to permit full identification. Device traceability will be maintained by Philips. Records shall be kept to document when the device is received, installed or returned/uninstalled/disposed at the hospital.

2. JUSTIFICATION FOR THE DESIGN OF THE STUDY

Dynamic Coronary Roadmap has been clinically evaluated in the Isala Klinieken, Zwolle, The Netherlands and in the Centre Cardiologique du Nord, St. Denis, France, respectively. The findings of the evaluations have been described in the following two reports:

Zwolle: "XCY607-130019 Clinical Study End Report.pdf" [5]
St. Denis: "XCY607-130044 Clinical Study End Report v1 Cardiac Roadmap.pdf" [6]
A Clinical Evaluation Report has been created for Dynamic Coronary roadmap R2 DHF287327 [7].

2.1. Clinical study Justification

The abovementioned evaluation in Zwolle took place prior to the evaluation in St. Denis. In short, the evaluation in Isala Klinieken, Zwolle, The Netherlands showed that in about 80% of the patients, a suitable roadmap could be generated for guidewire navigation. Philips made the decision to modify the software with the aim to improve the success rate. A new clinical evaluation was performed in Centre Cardiologique du Nord, St. Denis, France, where it was demonstrated that Dynamic Coronary Roadmap was capable of creating suitable roadmaps for guidewire navigation in 94% of the fluoroscopy usage for guidewire navigation. During this evaluation it became apparent an improved workflow is needed so that Dynamic Coronary Roadmap can be used in combination with StentBoost Live.

Dynamic Coronary Roadmap was pre-clinically tested in combination with StentBoost Live. The combination of these products was called PCI Express. The PCI Express software was aimed at workflow optimization. The workflow was tested pre-clinically using a set-up of PCI Express in combination with an X-ray system or X-ray simulator. A combination of phantoms and clinical images were used to mimic patients. Multiple users, including interventional cardiologists, clinical scientists and innovation scientists have evaluated the workflow of coronary angiography and intervention. The feedback was used to further optimize the workflow and design of the PCI Express.
The pre-clinical evaluations were a surrogate for testing PCI Express during coronary angiography or intervention. However, neither time critical procedure steps, the presence of and interaction between multiple people in the heart catheterization laboratory, nor the anatomy and physiology of patients could be emulated. Therefore, a final determination of the optimal workflow was done in a clinical setting. This new iteration of the device was evaluated in Universitäts Klinikum Dusseldorf [8]. The study aimed for evaluation of the usability and workflow of Dynamic Coronary Roadmap in combination with StentBoost Live. The improved workflow and usability were evaluated and no new risks were identified. Results showed that StentBoost Live can be used in combination with Dynamic Coronary Roadmap.

To our knowledge, there are no comparable devices for Dynamic Coronary Roadmap, capable to perform a dynamic superimposition of the coronary anatomy on live fluoroscopy.

3. OBJECTIVES AND HYPOTHESES

3.1. Primary objective

The primary objective of this clinical study is:

- To collect data on the amount of contrast used during PCI with the aid of Dynamic Coronary Roadmap to define a possible contrast reduction. The study will serve as a pilot for potential larger and/or multi-center follow-up studies to define a possible contrast reduction claim.

The objective is descriptive in nature and is intended to provide additional information. There will be no pass or fail criteria.

3.2. Secondary objective(s)

The secondary objective is/are:

- Assessing radiation usage during PCI with the aid of Dynamic Coronary Roadmap
- Collecting patient demographics to further define the study population
- Assessing procedure efficiency
- Collecting procedural information to further define the study population

The objectives are descriptive in nature and are intended to provide additional information. There will be no pass or fail criteria.

4. STUDY DESIGN

4.1. General

This is a prospective, non-randomized, unblinded, observational, single-center study.

A non-randomized study design has been chosen to get first insights in contrast reduction with the use of Dynamic Coronary Roadmap. This study will serve as a pilot study to power a pivotal study at a later stage.

The results of the study population will be compared with retrospective data generated before the Dynamic Coronary Roadmap was installed.

4.2. Study device exposure and comparators

The Dynamic Coronary Roadmap will not be in contact to the patient. The monitor of the system will be displayed to the physician during the procedure. The software is installed on a PC which is placed in the control room.

There are no additional devices or medications required for the study, other than the ones that are used as part of the standard of care.

4.3. Subjects

4.3.1. In- and exclusion criteria

Subjects participating in the study will be carefully selected based on the next inclusion and exclusion criteria.

4.3.1.1. *Inclusion criteria*

- Subject undergoing a percutaneous coronary intervention
- Subject 18 years of age or older, or of legal age to give informed consent per state or national law

4.3.1.2. Exclusion criteria

- Subject undergoing an emergency treatment
- Primary angioplasty for acute ST segment elevation myocardial infarction.
- Subject with contrast allergies
- Subject with severe kidney disease (e-GFR < 40 by Modification of Diet in Renal Disease (MDRD)/Cockcroft Gault clearance formula and/or upon decision by investigator)
- Subject participates in a potentially confounding drug or device trial during the course of the study.
- Prisoners, people who cannot legally give consent, pregnant women and breastfeeding women

4.3.2. Duration

The total duration of the study is expected to take approximately 4 months.

4.3.3. Enrollment

Subjects are considered to be enrolled in the study after they have signed the informed consent form. No study procedures will be performed before this moment.

Subjects are enrolled in the study for the duration of the interventional procedure. No follow-up is required per protocol. Patient will be followed according to regular clinical standard of care.

4.3.4. Number of subjects

It is expected that 45 subjects (see section 5 Statistical considerations) are necessary to collect sufficient data for the evaluation of the objectives of this clinical study. The enrollment period is expected to last for 4

months. There are no criteria for the amount of subjects treated with Dynamic Coronary Roadmap R1.1 versus R2.0, since a differentiating effect on this study's endpoints is not expected.

4.3.5. Procedure for the replacement of subjects

Subjects in the study will not be replaced.

The data of these subjects will be analyzed (per intention to treat analysis, see section "statistical considerations").

4.3.6. Subject withdrawal or discontinuation

Subjects can withdraw informed consent/data protection at any time during the study. There are no specific criteria for subject withdrawal or discontinuation

4.4. Procedures

Patients will receive standard medical treatment for their cardiac condition. During routine procedures, the physician may take angiograms for diagnosis which also serve as reference for device navigation. These angiograms will be automatically processed in the Dynamic Coronary Roadmap software and displayed as an overlay on the fluoroscopy for navigation support. In case a balloon catheter is used, the physician may take cine images when deflating the balloon as part of the standard care. These images can automatically be enhanced with the software and displayed. There is no follow up required after the procedure.

Phase 1: This is the phase where the physicians and study personnel can get used to the device and its capabilities. This phase serves to gain experience with the device and define workflow changes for the second phase. The use of Dynamic Coronary Roadmap makes these workflow changes possible and necessary in order to reduce the amount of contrast volume. It is estimated that 20 patients are necessary to gain enough experience and assess the workflow improvements.

Phase 2: This phase will focus on the contrast volume reduction. The defined workflow changes from phase 1 will be implemented in order to reduce the use of contrast volume. The minimal amount of contrast and timing of dosing will be defined. All other doses need to be avoided, as long as clinically acceptable. It is estimated that 25 patients are necessary to gain enough data to support the primary endpoint. This dataset will be compared with retrospective data from 25 patients that were treated without Dynamic Coronary Roadmap, preferably in the same timeframe.

4.5. Monitoring Plan

Monitoring will be performed by a trained person appointed by Philips to ensure compliance with the clinical study plan, applicable national regulations and international standards, patient safety and data validity. The Sponsor may designate one or more individuals to monitor the progress of a clinical study. The Sponsor may also delegate the monitoring responsibilities to a third party. However, the Sponsor remains ultimately responsible for the conduct of the study. The Institution is responsible for the appropriate de-identification of subject data. The investigational site should provide access to the source data of the subjects.

The first visit will occur as soon as possible after the first subject is enrolled at each study site. The monitoring schedule is based on the following considerations: enrollment rate, study compliance at the center, magnitude of data corrections required, study stage (e.g. start-up or follow-up), complexity of the study, IRB/MEC request, audit/inspection.

The monitor activities include:

- Check that the study is conducted, recorded and reported in compliance with this clinical study plan, and applicable regulations. Acts to oversee the progress of the study.
- Check signed and dated informed consent of the subjects and check that this is signed before any study-related procedures are undertaken.

- Ensure that essential documents (e.g.contract, MEC approval) are maintained in the Investigator Site File.
- Ensure recording of deviations from protocol and store in Investigator Site File or CRF.
- Ensure that the principal investigator is informed and knowledgeable of all relevant document updates concerning the clinical study (e.g Clinical study plan). Ensure that amendments to the protocol are provided to the MEC/IRB by the principal investigator.
- Ensure device accountability and check unapproved use outside the study.
- No structural source data verification is anticipated.

Names of the monitor(s) can be found in *Appendix IV List of monitor(s)/Clinical Scientist(s)* of this protocol. An update of this list can be provided to the site under separate cover.

5. STATISTICAL CONSIDERATIONS

Any deviation from the planned analysis described below will be documented with justification in the final clinical end report.

5.1. Primary objective

Objective
To collect data on the amount of contrast used during PCI with the aid of Dynamic Coronary Roadmap to define a possible contrast reduction.

Endpoint
The primary endpoint of the study is the amount of contrast used during the PCI procedure. This will be defined as amount of iodine contrast in ml.

Experimental design
The objective is descriptive with no performance requirements and no pass or fail criteria.
All Phase 2 subjects will be included in this analysis.

Presentation format
Results will be described in summary statistics with median, confidence interval and standard deviation.
Depending on the amount of data gathered during the clinical study a student t-test can be performed.

Sample size
To gain short term and long term user feedback on the usability and for the evaluation of the primary and secondary objectives of this clinical study, it is expected that approximately 45 patients will need to undergo a procedure with the study device.

5.2. Secondary objectives

5.2.1. Secondary objective: Radiation

Objective
Assessing radiation usage during PCI with the aid of Dynamic Coronary Roadmap

Endpoint
The endpoint is amount of radiation used during the PCI procedure. This will be defined as DAP fluoro (mGycm^2), DAP exposure (mGycm^2), DAP total (mGycm^2), AK total (mGy).

Experimental design
The objective is descriptive with no performance requirements and no pass or fail criteria.
All Phase 2 subjects will be included in this analysis.

Presentation format

Results will be described in summary statistics with median, confidence interval and standard deviation. Depending on the amount of data gathered during the clinical study a student t-test can be performed.

5.2.2. Secondary objective: Demographics

Objective
Collecting patient demographics to further define the study population

Endpoint
The endpoint is the demographical information of the study population. This will be defined as medical status and history, age, BMI and gender.

Experimental design
The objective is descriptive with no performance requirements and no pass or fail criteria.
All Phase 2 subjects will be included in this analysis.

Presentation format
Results will be described in summary statistics with median and standard deviation. Depending on the amount of data gathered during the clinical study a student t-test can be performed.

5.2.3. Secondary objective: Procedure efficiency

Objective

Assessing procedure efficiency

Endpoint
The endpoint is procedural timing. This is defined as the time from start of the procedure (catheter inserted) until end of the procedure (catheter removed) and time until first stent is placed.

Experimental design
The objective is descriptive with no performance requirements and no pass or fail criteria.
All Phase 2 subjects will be included in this analysis.

Presentation format
Results will be described in summary statistics with median, confidence interval and standard deviation. Depending on the amount of data gathered during the clinical study a student t-test can be performed.

5.2.4. Secondary objective: Procedural information

Objective
Collecting procedural information to further define the study population

Endpoint
The endpoint is procedural information. This is defined as information on treated vessels, number of lesions, number of stents, type of lesion, catheter access site, lesion complexity, IVUS usage, OCT usage and FFR usage. These endpoints are typically recorded for patients undergoing coronary interventions, also for non-study patients.

Experimental design
The objective is descriptive with no performance requirements and no pass or fail criteria.
All Phase 2 subjects will be included in this analysis.

Presentation format
Results will be described in summary statistics with median and standard deviation. Depending on the amount of data gathered during the clinical study a student t-test can be performed.

6. DATA MANAGEMENT

Electronic Case Report Form (e-CRF) will be used to collect medical history, subjects demographics, procedure related information, protocol deviations, adverse events and device deficiencies. The e-CRF will be used for data review, data cleaning and issuing and resolving queries. This e-CRF is a web-based e-CRF which is password protected and is 21 CFR part 11 compliant. At the end of the study the data will be stored as a frozen dataset and will be retained.

Raw image data is collected directly from the detector, and therefore is free from any subject information. All other exported data will be de-identified. This data will be collected and stored in a secure location.

6.1. Retention period

The investigator shall maintain the records related to this study during the research and for a period according to the national regulation.
Philips will maintain the records for a period of device End of Life (EoL) plus 15 years.

The sponsor and principal investigator shall take measures to prevent accidental or premature destruction of these documents.

7. AMENDMENTS TO THE CLINICAL STUDY PLAN

Non-significant changes of the Clinical Study Plan may be included (minor logistical or administrative changes not effecting the rights, safety and well-being of human subjects or not related to the clinical research objectives or endpoints), without prior approval. A simple notification to the IRB and where appropriate regulatory authorities will be made by the Sponsor. Significant changes (such as device modifications, study procedures) shall be discussed with the principal investigator prior approval. All changes will be documented with a justification and described in the latest version of the Clinical Study Plan.

8. DEVIATIONS FROM THE CLINICAL STUDY PLAN

The Investigator is not allowed to deviate from the Clinical Study Plan or to enroll subjects that do not comply with all inclusion and exclusion criteria. Under emergency circumstances, deviations from the Clinical Study Plan to protect the rights, safety and well-being of human subjects may proceed without prior approval of the sponsor and the IRB. Such deviations shall be documented and reported to the sponsor and the IRB as soon as possible
All deviations from the Clinical Study Plan will be documented with date, subject, reason, actions taken and if the deviation affects subject's rights, safety and wellbeing or the scientific integrity of the clinical research. The deviation shall be notified to the Sponsor via the e-CRF as soon as possible. Deviations will be reviewed by the sponsor. In case of serious or repetitive deviations, a corrective action plan may be necessary. In some cases suspension of enrollment at the site or disqualification of the site is necessary.

9. DEVICE ACCOUNTABILITY

Access to the study device shall be controlled and the study devices shall be used only in the clinical research and according to the Clinical Study Plan.

The sponsor shall keep records to document the physical location of all study devices from shipment of study device to the research sites until return or disposal.

The principal investigator shall keep records documenting the receipt, installation, use, return and disposal of the study device, including date of receipt, identification of each study device and date on which the study device was returned.

10. STATEMENTS OF COMPLIANCE

This clinical study shall be conducted in accordance with the clinical study plan, and with the ethical principles that have their origin in the Declaration of Helsinki and all applicable regional and/or national regulations. Furthermore, in Europe this clinical study shall be conducted as much as possible with the International Standards ISO 14155 Clinical investigation of medical devices for human subjects - Good

clinical practice and the Medical Device Directive (MDD). Investigators located in the US shall follow: 21 CFR part 50, 56 and 812.

This study shall not be started prior to obtaining a favorable opinion from a Medical Ethics Committee (MEC)/Institutional Review Board (IRB), if required. Any additional requirements imposed by the MEC/IRB shall be followed.

Insurance shall be provided for the subjects participating in this clinical trial according to local law.

11. INFORMED CONSENT PROCESS

Informed consent will be obtained from every subject in writing by the Investigator or his authorized designee before the clinical study is started.The subject will be informed both orally and in writing about all aspects that are relevant to the subject's decision to participate in the clinical study, including the clinical study procedures. Ample time should be provided for the subject to read and understand the informed consent form and to consider participation. The informed consent will include personally dated signatures of the subject and the principal investigator or an authorized designee responsible for conducting the informed consent process. A copy of the signed and dated informed consent form and any other written information will be provided to the subject.

Subjects who are unable or unwilling to provide informed consent will not be included in the Research.

If new information becomes available that might significantly affect the subject's future health and medical care, it shall be provided to the subjects in written form. If relevant, subject shall be asked to reconfirm their continuing informed consent in writing.

11.1. Subject unable to read or write

Informed consent shall be obtained through a supervised oral process if a subject or legally authorized representative is unable to read or write. An independent witness shall be present throughout the process. The written informed consent form and any other information shall be read aloud and explained to the prospective subject or his/her legally authorized representative and, whenever possible, either shall sign and personally date the informed consent form. The witness also signs and personally dates the informed consent form attesting that the information was accurately explained and that informed consent was freely given.

12. SAFETY REPORTING

The following event should be reported to Philips for Medical Device Reporting (MDR) according to 21 CFR part 803: Deaths and serious injuries that a device has or may have caused or contributed to, caused or contributed means that a death or serious injury was or may have been attributed to a medical device, or that a medical device was or may have been a factor in a death or serious injury, including events occurring as a result of: (1) Failure; (2) Malfunction; (3) Improper or inadequate design; (4) Manufacture; (5) Labeling; or (6) User error.
Medical Device Reporting shall be reported to the regular Philips Healthcare customer feedback system, i.e. contact the local Helpdesk to report these events. Also report these to the Clinical Scientist (see Appendix II: List of monitor(s)/Clinical Scientist(s).

13. EARLY TERMINATION OR SUSPENSION OF THE CLINICAL STUDY

There are no provisions or interim analyses planned that can result in an early termination of the trial. Serious or repetitive occurrence of deviations from study protocol or non-compliance with regulations may also be reason for early termination or suspension of a study site.

14. PUBLICATION POLICY

It is the intention of the investigator and sponsor to submit the clinical study data for publication. Prior to submission, claims on intellectual property will be assessed.

This study will also be registered on clinicaltrial.gov before first enrollment.

15. ABBREVIATIONS USED

Abbreviations	Explanation of abbreviation
CAD	Coronary Artery Disease
CFR	Code of Federal Regulation
CHF	Congestive Heart Failure
CI-AKI	Contrast Induced Acute Kidney Injury
CIN	Contrast Induced Nephropathy
CM	Contrast Medium
CRF	Case Report Form
DM	Diabetes Mellitus
e-CRF	Electronic Case Report Form
e-GFR	Estimated Global Filtration Rate
FDA	Food Drug Administration
FFR	Fractional Flow Reserve
iABP	Intra-Aortic Balloon Pump
IFU	Instructions for Use
IRB	Institutional Review Board
IVUS	Intravascular Ultrasound
OCT	Optical Coherence Tomography
PCI	Percutaneous Coronary Intervention

16. REFERENCES

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2. Mehran et al, A simple risk score for prediction of contrast-induced nephropathy after percutaneous coronary intervention, JACC, 2004, Vol. 44, No. 7
3. Stacul et al, Contrast induced nephropathy: updated ESUR Contrast Media Safety Committee guidelines, Eur Radiol (2011) 21:2527-2541
4. Dynamic Coronary Roadmap Instructions for Use
5. XCY607-130019 Clinical Study End Report
6. XCY607-130044 Clinical Study End Report v1 Cardiac Roadmap
7. DHF287327 CER Dynamic Coronary Roadmap R2
8. L Dannenberg et al, On the road: First-in-man bifurcation percutaneous coronary intervention with the use of a dynamic coronary road map and StentBoost Live imaging system. Int. Journal of Cardiology 2016; 215 7-8

17. APPENDIX I LIST OF INVESTIGATORS AND SITES

Update of this list can be provided to the study site under separate cover.

Table 1: List of principle Investigators

Name Principal Investigator(s)	Name and address investigation site(s)
[redacted]	

Table 2: List of other Investigators

Name Principal Investigator(s)	Name and address investigation site(s)
[redacted]	[redacted]
[redacted]	[redacted]

18. APPENDIX II: LIST OF MONITOR(S)/CLINICAL SCIENTIST(S)

Update of this list can be provided to the Investigational sites under separate cover.

Table 3: List of monitors

Name Monitor(s)	Contact Information of Monitors
[redacted]	[redacted]
[redacted]	[redacted]