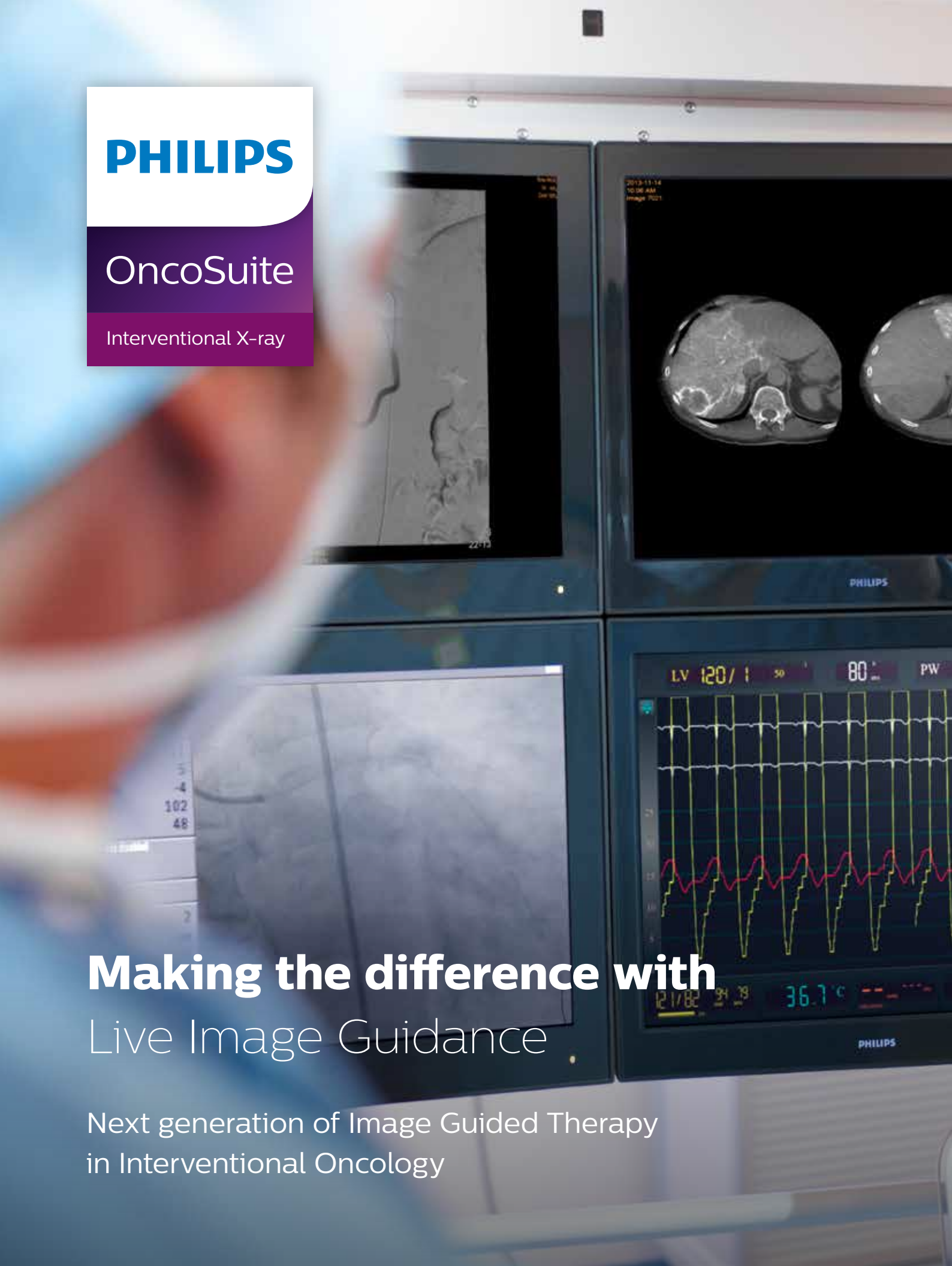
PHILIPS

OncoSuite

Interventional X-ray



Making the difference with Live Image Guidance

Next generation of Image Guided Therapy in Interventional Oncology

Live Image Guidance in
Interventional Oncology
OncoSuite: All interventional oncology in one room

Together we make the difference in tumor therapy to improve patient care. With our Live Image Guidance we aim to remove barriers to safer, effective, and reproducible minimally invasive treatments, delivering relevant clinical value where it's needed most - at the point of patient treatment.

Interventional oncology is one of the fastest growing areas in interventional radiology because of the advantages minimally invasive oncology interventions offer to cancer patients and the healthcare system. Advances in Live Image Guidance, loco-regional cancer therapy, and knowledge of tumor biology help make these interventions possible. As a physician you still face critical challenges when performing these procedures. How do you improve your chances of treating the entire tumor and all its feeder vessels, without affecting healthy tissue or organs? Groundbreaking new visualizations from Philips show the way forward.

Greater insight and confidence in finding and treating the problem

Live Image Guidance supports excellent detection of lesions and feeder vessels for embolization procedures and for accurate needle guided ablations

Lower barriers for minimally invasive interventions

Innovative imaging techniques expand scanning options while speeding reconstruction and maintaining low dose

Increased economic value

Opening doors to new procedures and techniques helps increase system utilization to meet your financial goals

Key advantages

- First complete solution for embolization and ablation procedures
- Optimized imaging to visualize radiopaque beads
- Dedicated 3D oncologic DualPhase imaging
- Live Image Guidance for treatment of multiple lesions
- New geometric movement to allow complete coverage of liver

Greater insight and confidence
in finding and treating the problem

OncoSuite
Gain new clarity and risk management with OncoSuite* – the complete solution to assist physicians in embolization of hypervascular tumors in the liver and percutaneous ablation procedures in interventional oncology treatment.

OncoSuite is the combination of our innovative product offerings XperCT Dual, EmboGuide and XperGuide.

The next generation XperCT Dual with 3D Live Image Guidance advances in-lab imaging to provide lesion information comparable to the gold standard CE-MRI[1].

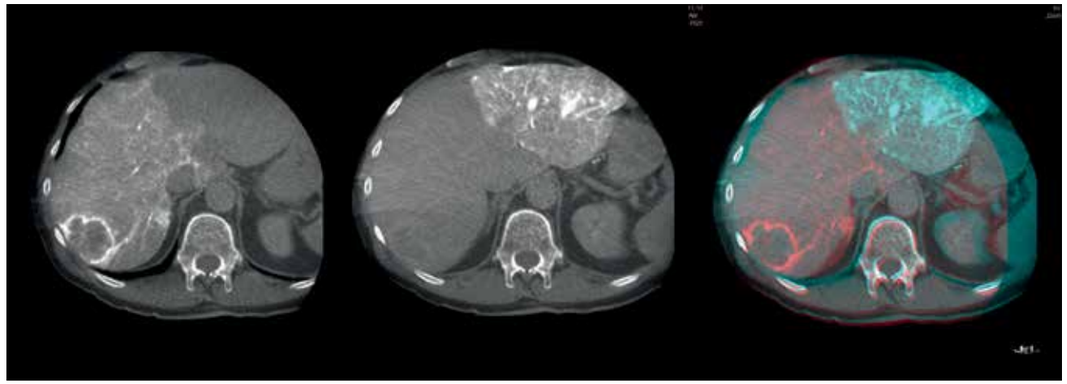
EmboGuide tool utilizes the 3D visualizations to improve detection of small hepatocellular carcinoma (HCC) and their feeding vessels[2]. EmboGuide supports Live Image Guidance in various embolization procedures, such as transarterial chemoembolization (TACE), and selective internal radiation therapy (SIRT).

XperGuide combines enhanced XperCT Dual with MRI, CT, and PET/CT information to support percuatenous tumor ablation. XperGuide provides reliable and accurate Live Image Guidance to reach small lesions (< 1 cm)[3] and allows optimal position of one or more needles to obtain full tumor coverage.

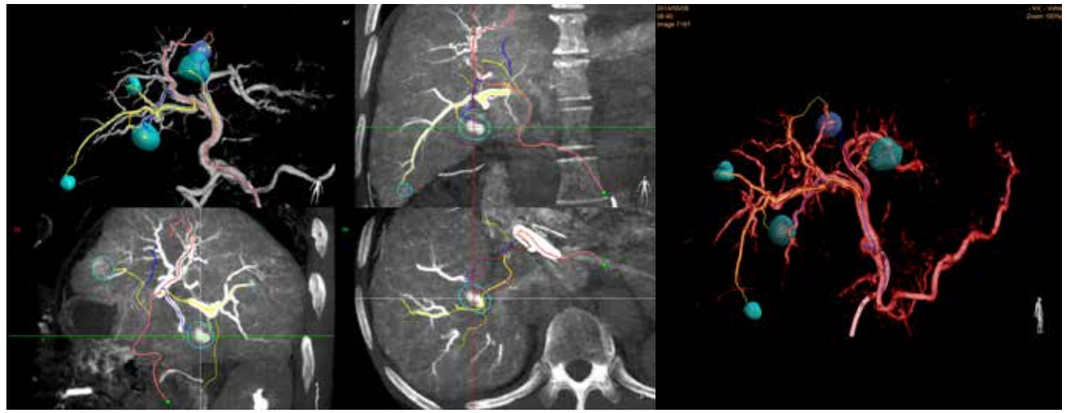
OncoSuite –
Unique Capabilities

- World's first optimized imaging for visualization of radiopaque beads (i.e. LC Bead LUMI™,**)
- New geometric movement to allow better centering of liver in CBCT field of view
- Unique DualPhase imaging highlights both feeder vessels and lesions
- Visualize even small tumors and segment multiple lesions at once.
- Auto detect feeder vessels between catheter tip and all lesions
- Plan percutaneous procedures on XperCT, MR, CT or PET/CT data

* All features referred to in this product overview are based on Allura X-ray system release 8.2 or higher.
** LC Bead LUMI™ is the official trademark of BTG (Biocompatibles UK Ltd.) and it is not available as part of Philips' OncoSuite. Please contact your local BTG sales representative for the availability of LC Bead LUMI™ in your region.

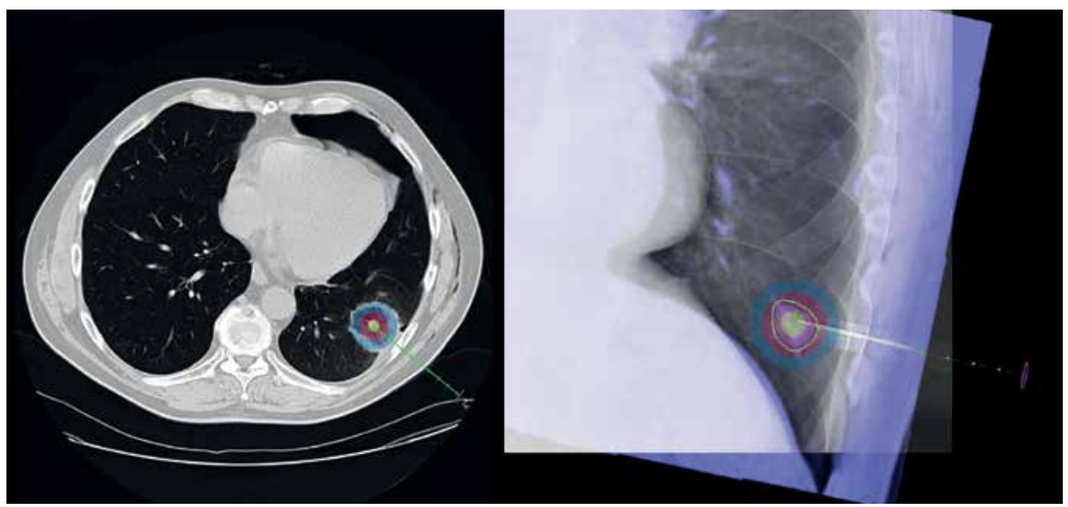


XperCT angiography of the right and left hepatic artery displayed next to each other and merged in DualView to assess complete coverage or possible extrahepatic shunting during pre-SIRT procedure[4,5]



EmboGuide automatically detects feeding vessels to multiple segmented lesions

EmboGuide roadmap with multiple lesions and automatically highlighted feeding vessels

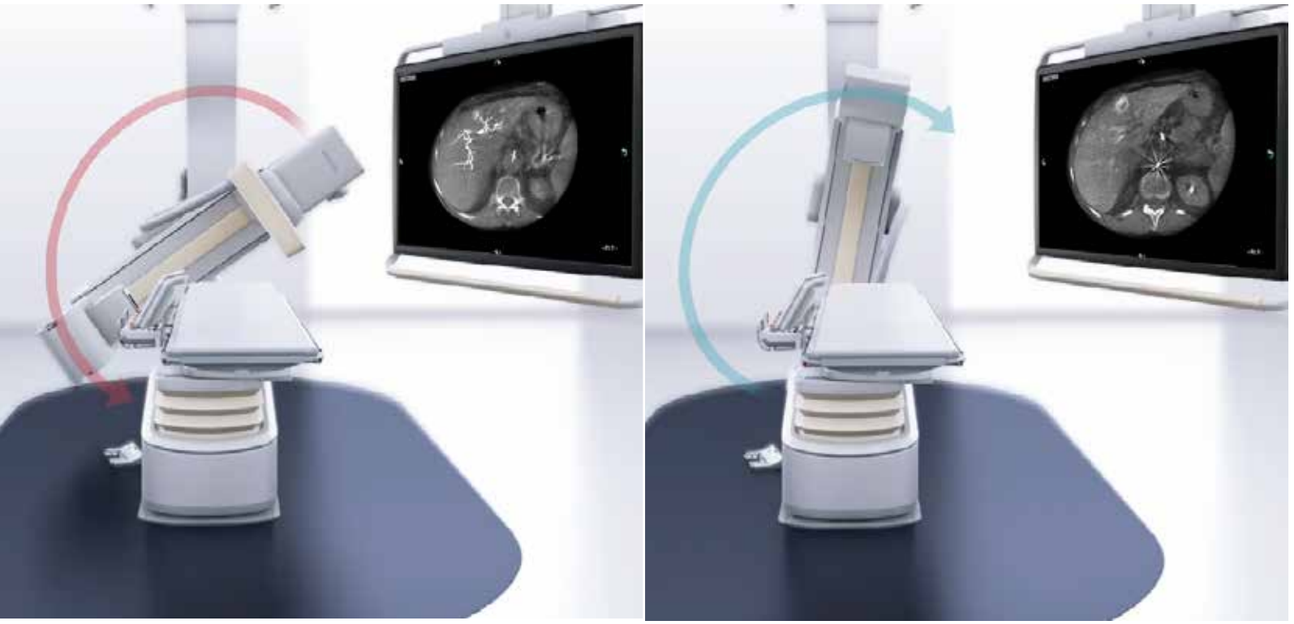


XperGuide with Ablation feature allows zone planning on a previously acquired CT dataset

Live Image Guidance towards ablation zone

XperCT Dual

Detection of liver lesions
comparable to MRI[3]



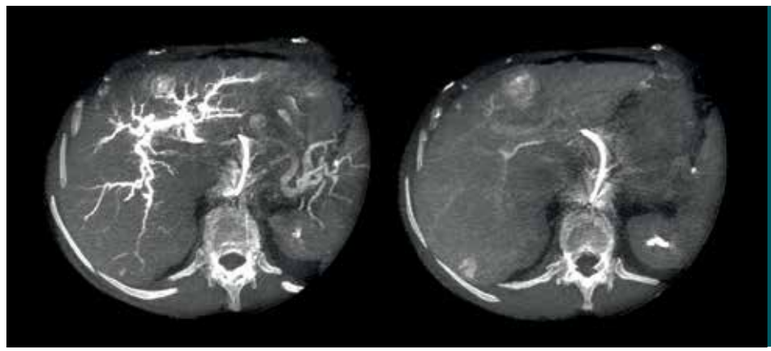
High-resolution lesion detection in the oncology suite
XperCT Dual offers CT-like imaging to visualize bone, soft tissue, and feeder vessels (for contrast-enhanced acquisitions).

The DualPhase acquisition* and DualView functionality allow simultaneous visualization of two sequentially acquired 3D data sets, such as the arterial and post-arterial contrast enhancement in oncologic liver imaging. The acquisitions are almost instantly available as high resolution and high contrast 3D visualizations to support fast assessment at tableside. XperCT Dual supports simultaneous multiple lesion segmentation.

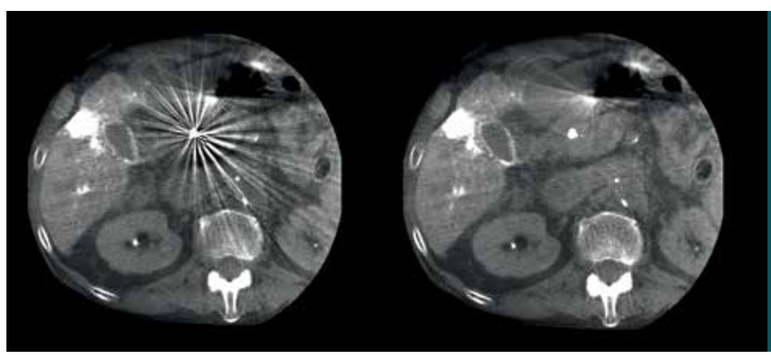
During Live Image Guidance, XperCT Dual allows you to combine and overlay 3D information from previously acquired data such as MRI, CT, PET/CT and XperCT volumes to gain additional anatomical insight. It also supports determination of treatment end-points in TACE and SIRT procedures and allows you to determine the tumor response.[6,7,8,9]

XperCT Dual – Unique Capabilities

- Dedicated imaging for visualization of radiopaque beads
- Better centering of liver with significantly improved intra-procedural depiction of peripheral hepatic tumors[10]
- DualPhase imaging highlights both feeder vessels and lesions
- DualView for simultaneous visualization of two 3D volume datasets
- 5 sec. fast acquisition to reduce breathing artifacts



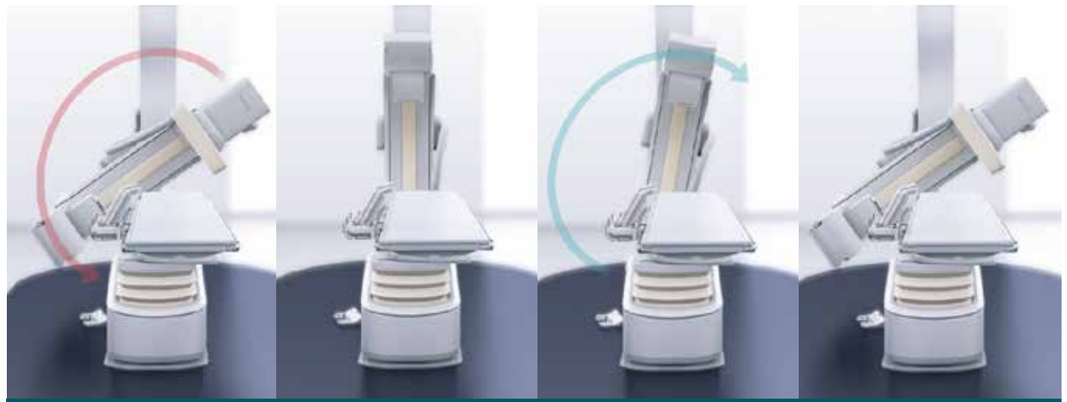
XperCT Dual, with DualPhase contrast enhancement of the vascular structure (arterial phase) and lesion (post-arterial phase).



Identical XperCT volume without (left) and with (right) Metal Artifact Reduction (MAR)

XperCT Dual

Pushing the boundaries
in soft tissue imaging

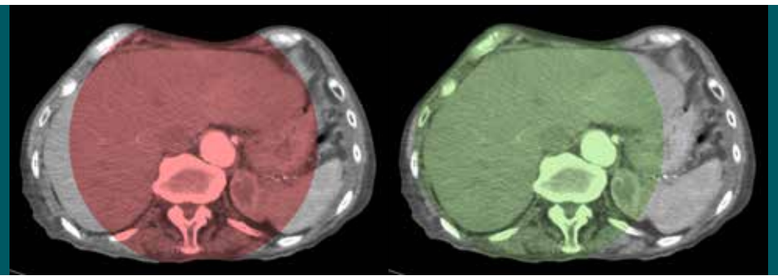


Open Trajectory is an innovative XperCT Dual acquisition technique that allows table movement in the lateral direction for better centering of the field-of-view (FOV) on the liver.

Open Trajectory feature

Traditional geometric movement of the C-arm centers the field-of-view (FOV) on the spine resulting in a truncated view of the liver. Our new Open Trajectory feature improves upon this by opening the rotation arc to the left side of the patient. This results in better centering of the FOV on the liver and significantly increases image coverage to help visualize tumors on the periphery of the organ[10].

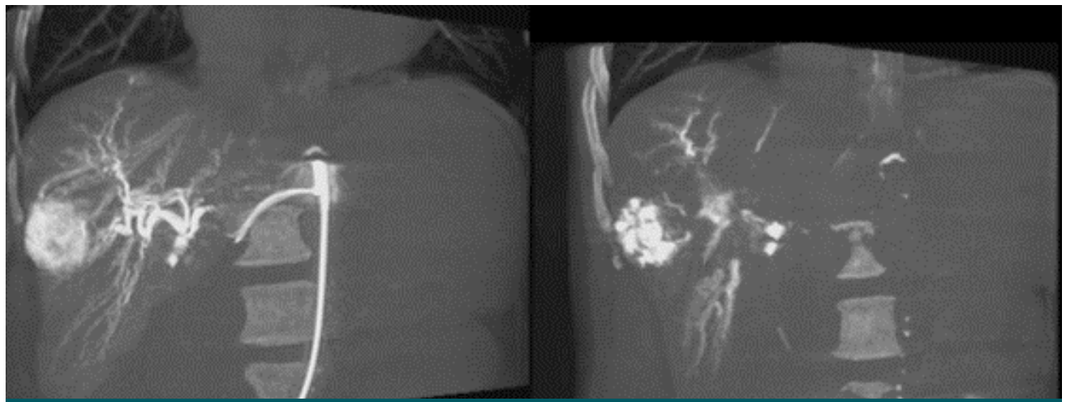
Coverage of liver with conventional trajectory – Truncated depiction of the liver



Coverage of liver with Open Trajectory – allows better centering of the FOV on liver to visualize peripheral part of the liver

> “Complete coverage of the liver during cone-beam CT imaging allows for **improved depiction of peripheral hepatic tumors**.

Schernthaner RE et al. Radiology. 2015; 277(3):833–41



Optimized imaging for radiopaque beads: DualView of pre-treatment arterial contrast XperCT (left) and post treatment bead accumulation XperCT (right)

World’s first dedicated imaging for radiopaque beads[11]

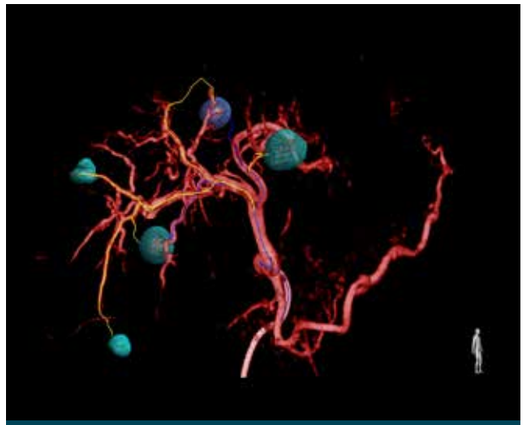
Imaging radiopaque beads used in tumor embolization
Through collaboration with BTG Interventional Medicine, XperCT Dual offers an optimized image acquisition protocol for the use of radiopaque embolic beads, LC Bead LUMI™ . With Live Image Guidance controlling delivery of the beads during the embolization in a hypervascularized tumor, the clinician can see where the beads go, in three-dimensions, providing greater insight into targeted delivery of the embolic material (the beads).

> “Optimized microbead visualization permitted integration of bead delivery with navigation and treatment planning tools and software. **LC Bead LUMI™ is directly visualized with (optimized) CBCT, this visual information may provide tools for standardization and reproducibility** of end points and treatment effects.

Levy EB et al. Cardiovasc Intervent Radiol. 2016; 39(8):1177-86

EmboGuide

Proven 3D Live Image Guidance
for tumor embolizations



Multiple lesion segmentation and feeder vessel detection using EmboGuide

EmboGuide – workflow-based embolization guidance
TACE is one of the most frequently performed oncology interventions. However, detecting small (less than 2 centimeters) HCCs is difficult using conventional 2D digital subtraction angiography (DSA) because of limited tumor vascularity or overlapping vessels[6, 12].

Now EmboGuide with XperCT Dual provides workflow-based 3D tool to guide each step in the detection and treatment of tumors and vessel feeders to multiple lesions.

For details please visit: www.philips.com/OncoSuite

“EmboGuide improves detection of lesions and their feeding vessels by 50% compared to standard DSA.

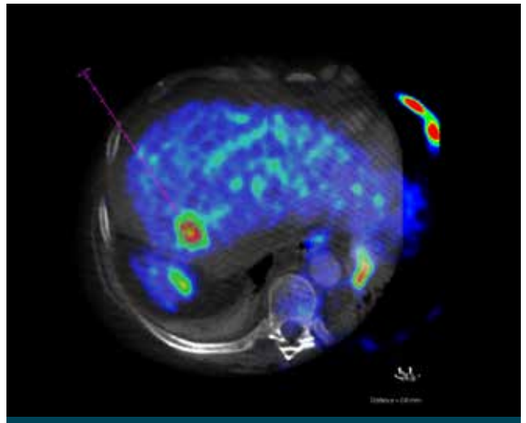
Miyayama, S et al. J Vasc Interv Radiol. 2013; 24(4):501-8

EmboGuide -
Unique Capabilities

- Workflow-guided manual tumor segmentation of multiple treatment targets
- Provides real-time 2D/3D overlay during Image Guidance, using 3D data from multiple data sources (CT/MR/XperCT)
- Provides a feeder detection tool for automatic and manual detection of feeding vessels to each identified lesion
- Overall workflow guidance allows clinicians to follow a pre-selected protocol and switch between treatment phases

XperGuide

Unique 3D Live Image Guidance
for percutaneous ablation procedures



Multiple lesion segmentation and feeder vessel detection using EmboGuide

Towards controlled results in the percutaneous ablation procedure
XperGuide with Ablation feature provides comprehensive assistance for treatment planning and live needle guidance during interventional ablation procedures (RF, Microwave, and cryo-ablation) by displaying the isotherm of the chosen ablation needle.

During planning, XperGuide with Ablation feature visualizes the specific ablation zones and distance between multiple ablation needles in 3D, based on their thermal characteristics. The virtual ablation needle and its isotherm can be displayed on a 3D XperCT volume or previously acquired CT, MR, or PET/CT data. This visualization allows you to verify the optimal position of one or more needles to obtain total tumor coverage.

For details please visit: www.philips.com/OncoSuite

“Cone Beam CT with live 3D needle guidance is a useful technique for percutaneous lung ablation. Despite lesion size, CBCT allows faster lung RFA than CT.

Cazzato RL et al. Cardiovasc Intervent Radiol. 2015 Oct; 38(5):231–1236

XperGuide -
Unique Capabilities

- Define target point and entry point for multiple virtual needles
- Visualize thermal characteristics of RF, microwave antennae, and cryo-ablation needles to support planning that aids in obtaining full lesion coverage and sparing critical structures
- Visualizes the thermal profile of a combination of multiple ablation needles
- Live Image Guidance of each needle to target position along pre-planned trajectory

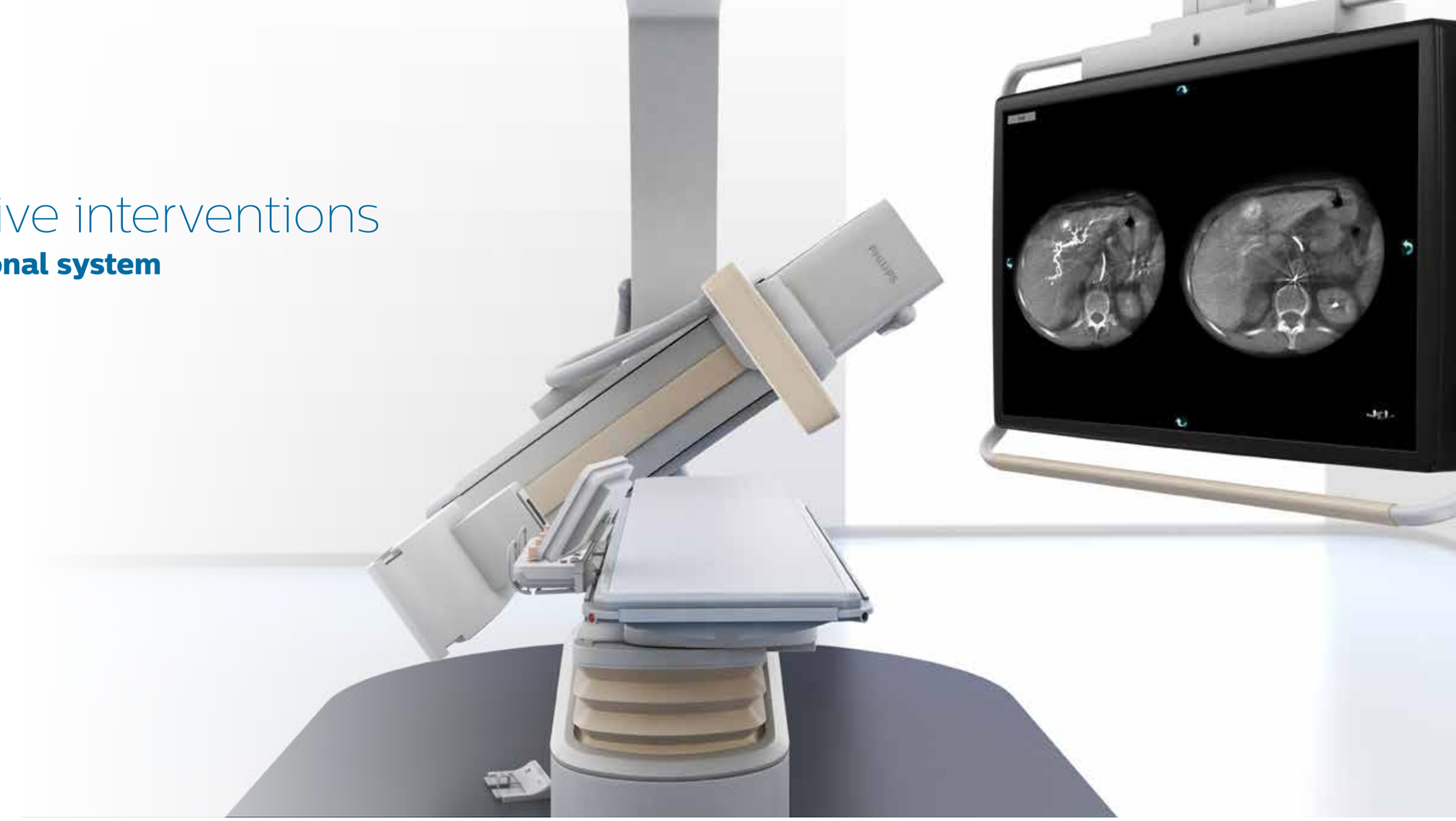
Lower barriers

for minimally invasive interventions

AlluraClarity FD20 interventional system

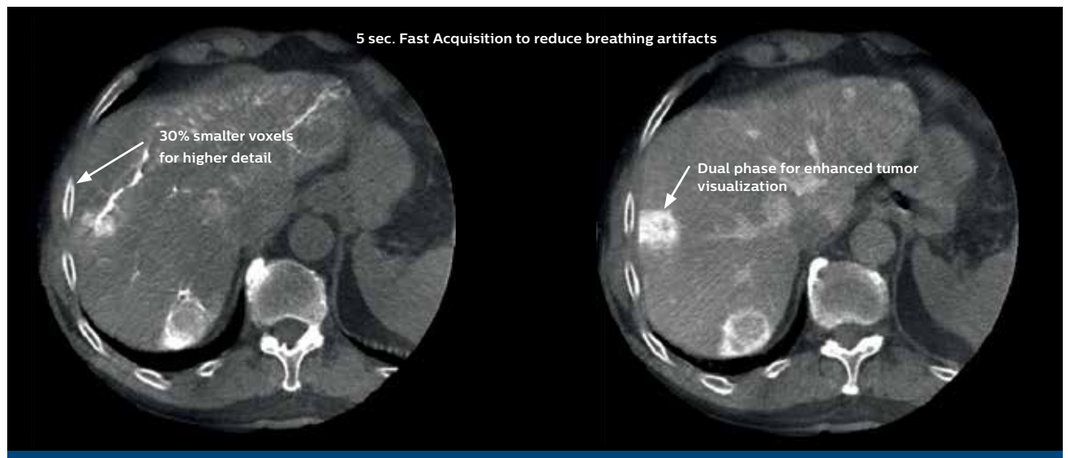
3D imaging chain engineered for interventional oncology
To enhance lesion visualization, our Allura Xper FD20 and AlluraClarity FD20 interventional system offers a 3D imaging chain designed to meet the demands that oncologic pathology and procedures place on an X-ray imaging system. It offers a number of unique technologies and interventional tools to support clinicians in seeing, reaching, and treating tumor lesions.

Tailored imaging for interventional oncology applications
The excellent visualizations provided by the Live Image Guidance of the AlluraClarity FD20 is possible thanks to two Philips technologies: next generation 16 bit FD20 detector technology and the DualPhase C-arm. Our powerful 3D image processing unit reconstructs these acquisitions into high resolution, high contrast 3D images four times faster than previous generation systems to support fast decision making during oncology interventions.



AlluraClarity imaging: Right Hepatic Artery

AlluraClarity imaging: kidney perfasion



Arterial phase

Delayed phase

Increased
economic value

We partner with you to reduce readmissions, streamline workflow, and increase patient volume by opening the door to new procedures and techniques.

Our suites provide the flexibility to support a wide range of procedures enabling you to increase system utilization and decrease your total cost of ownership.

Our flexible service contracts are tailored to your budget to protect your interventional or surgical suite investment over its entire lifecycle by increasing uptime and providing easy access to the latest upgrades and innovations.

References

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3. Choo, JY et al. European Radiology. 2013; 23(3):712-9
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10. Schernthaner RE et al. Radiology. 2015; 277(3):833–41
11. Levy EB et al. Cardiovasc Intervent Radiol. 2016; 39(8):1177-86
12. 12. Higashihara et al. Eur Radiol. 2012 Apr; 22(4):872-9

- XperCT Dual rel3.3 with Open Trajectory and XperCT for LUMI optimized imaging is pending CE mark and not yet available for delivery.
- This material is not meant for distribution in the USA.

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