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.

EmboGuide tool utilizes the 3D visualizations to improve detection of small hepatocellular carcinoma (HCC) and their feeding vessels. 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 MR, CT, and PET/CT information to support percutaneous tumor ablation. XperGuide provides reliable and accurate Live Image Guidance to reach small lesions (<1 cm) 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 LUMITM**)
- 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

**EmboGuide tool utilizes the 3D visualizations to improve detection of small hepatocellular carcinoma (HCC) and their feeding vessels.**

**XperGuide combines enhanced XperCT Dual with MR, CT, and PET/CT information to support percutaneous tumor ablation.**

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*All features referred to in this product overview are based on Allura X-ray system release 8.2 or higher.

**LC Bead LUMITM 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 LUMITM in your region.**

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**EmboGuide automatically detects feeding vessels to multiple segmented lesions**

**EmboGuide roadmap with multiple lesions and automatically highlighted feeding vessels**

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

**Low Image Guidance towards ablation zone**
XperCT Dual

Detection of liver lesions comparable to MRI³

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 the bedside. 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 endpoint in TACE and SIRT procedures and allows you to determine the tumor response.⁶⁷⁸

XperCT Dual – Unique Capabilities

- Dedicated imaging for visualization of radiopaque beads
- Better centering of liver with significantly improved intra-procedural depiction of peripheral hepatic tumors¹⁰
- 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

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**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.

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**World’s first dedicated imaging for radiopaque beads**

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).

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


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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.

EmboGuide
Proven 3D Live Image Guidance for tumor embolizations

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.1,2

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.

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

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

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

XperGuide
Unique 3D Live Image Guidance for percutaneous ablation procedures

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

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.

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.

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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.

Arterial phase
Delayed phase
30% smaller voxels for higher detail
Dual phase for enhanced tumor visualization
5 sec. Fast Acquisition to reduce breathing artifacts

**AlluraClarity imaging: Right Hepatic Artery**
**AlluraClarity imaging: kidney perfusion**

**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
4. Huerter TA et al. ROFO. 2010; 182:603–608
• 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.