

MARKERLESS, 3D SURFACE TRACKING

A REVOLUTION IN GATED RADIATION THERAPY

Tracks the 3D surface of a patient in real time without the need to apply external markers or any other physical device to the patient.

gatect®

MARKERLESS SURFACE TRACKING
FOR 4D CT RECONSTRUCTION



GateCT® tracks the 3D surface of a patient during 4DCT data acquisition. The system is synchronised with the CT scanner* and facilitates retrospective 4D CT reconstruction. Real time respiratory tracking enables prospective gated capture of CT data.

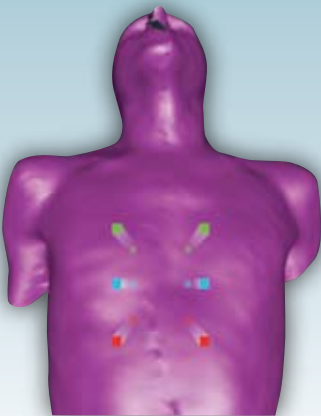
gaterT®

REAL TIME, MARKERLESS,
RESPIRATORY GATING



GateRT® tracks respiratory motion in real time during radiation delivery or diagnostic imaging. The system monitors signals derived from the 3D surface of the patient. Suitable gating thresholds are determined by the user and set within the software. These are used to gate the radiation beam during treatment* or imaging*.

KEY FEATURES



No markers are required

Intuitive and easy to use

3D points or regions may be tracked anywhere on the patient's surface

All tracked data are calibrated precisely to the isocentre

Tracking points may be determined automatically from a previous session

Automatic detection of patient movement

Automatic detection of abnormal breathing

Low tracking latency

Full surface data may be recorded in real time†

† GateCT only

*See GateCT-RT third party interface statement for a list of devices which are compatible with GateCT® and GateRT®.

gatect[®] gater[®] TECHNICAL INFORMATION

The following details describe the operation of both GateCT[®] and GateRT[®] systems:



GATE CONTROLLER

The Gate Controller is linked to the Vision RT workstation via a fibre optic link ensuring total isolation between the workstation and third party* hardware.

The Gate Controller supports both GateCT[®] and GateRT[®] systems in a common hardware platform and vendor specific functions are configured via software.

SELECTION OF TRACKING POINTS OR REGIONS

Tools are provided for the user to select points or regions of interest from the patient's reference surface.

COUCH POSITION COMPUTATION (GateCT[®] only)

In order to track the patient consistently whilst the couch is moving, GateCT[®] computes the couch position throughout the CT scan.

REVIEW TRACKED BREATHING DATA

Tools are provided to allow the user to edit automatically detected phase tags and to mark any invalid data as such.

PATIENT MOVEMENT MONITORING

The user may select anatomical regions of interest which reside outside the thorax and abdomen. Thus, any patient movement may be detected instantaneously and communicated to the gating interface.

AUTOMATIC DETECTION OF BREATHING ABNORMALITIES

Using advanced techniques, breathing abnormalities may be detected and flagged automatically.

STORAGE OF TRACKING DATA

All tracking data are stored to disk automatically. In addition, with GateCT[®], the user may choose to store all raw 3D data acquired during real time tracking for the purpose of retrospective processing and analysis.

*For certain devices, a third party interface will need to be acquired from the vendor.