Organ motion is variable and unpredictable, posing challenges during delivery of external beam radiation therapy to cancer treatments. The ability to track target motion in real time during treatment and gate the delivery beam can enable reduction in the margins between the clinical target volume (CTV) and the planning target volume (PTV). The Calypso® system provides these capabilities. The Calypso system is a localization system designed for use during radiation therapy that provides accurate, objective and continuous non-ionizing target localization information for initial patient alignment, target position monitoring during radiation treatment delivery and low-latency gating of the treatment beam. Use of Calypso for target localization is based on the system’s detection of an electromagnetic signal generated by Beacon® transponders implanted in or near the treatment target.
Tumors in the abdominal region can be difficult to visualize with kV imaging due to the significant amount of motion during treatment delivery and similar densities of tumor and surrounding tissues. In addition, interventional radiologists performing percutaneous implants in these regions prefer smaller needle gauges than the 14G version of the Calypso transponder. To address these challenges Varian is introducing a new smaller 17G beacon that can be used for tracking motion of soft tissue tumors during treatment delivery. This new Soft Tissue Beacon transponder has been cleared by the U.S. Food and Drug Administration and is CE marked for implantation into soft tissue throughout the body, with the exception of the lung. This new Soft Tissue Beacon has a 50% smaller cross-section area than the current 14G version. Clinicians can use the new transponder in most places where they would have used standard fiducial markers such as gold seeds to localize a tumor with the added benefit of continuous position tracking throughout the treatment delivery and low-latency (<100 ms) beam gating.

Three Beacon transponders and three introducer needles are provided in each Beacon Care Package.