

# Early Assessment of Biophysical Parameters Predicts Lesion Formation During RF Energy Delivery

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## Technology description

### Invention

Lesion size or volume prediction shortly after the beginning of an ablation procedure can inform and/or control the ablation process. The prediction and/or control is made without regard to an actual detected temperature in the vicinity of the ablation electrodes. As a consequence, the system has utility with irrigated catheter constructions and other situations in which local irrigation in the vicinity of an ablation site would otherwise interfere with a prediction or control scheme that solely relies upon temperature measurements.

### Background

Radio frequency ablation (RFA) is a medical procedure used to treat a medical disorder where part of the electrical conduction system of the heart, tumor or other dysfunctional tissue is ablated using the heat generated from a high frequency alternating current. Cardiac arrhythmias that originate from a focal area or depend upon a discrete circuit can be eliminated by catheter ablation. Various energy sources are utilized for this purpose of which radio frequency (RF) energy of 200 kHz-500 kHz is most commonly employed and is delivered to electrodes on the tip of a catheter. Heating occurs due to power dissipation within the tissue of the energy delivered by the electrodes. Power density decreases in relation to the square of the distance from the electrode.

## Application area

### Irrigated ablation procedures

#### Ablation procedure

## Advantages

There is no currently available technology to accurately predict ablation lesion size within seconds of onset of delivery of radiofrequency (RF) energy.

The present control system has utility in certain applications such as with irrigated ablation procedures

which, because of the local irrigation in the vicinity of the ablation site, have created difficulties when using conventional control solutions.

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