

# An Initial Clinical Experience with a Novel Microwave Radiometry Sensing Technology used in Irrigated RF Ablation for Flutter

## Authors

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## Introduction:

The assessment of tissue temperatures during radiofrequency delivery is essential to achieve predictable lesions and avoid excess heating. We report the initial results of a novel irrigated ablation catheter which measures and interprets microwaves emitted from heated tissue (**Tempasure™, Advanced Cardiac Therapeutics**). Radiometric sensing is not affected by saline-cooling and enables accurate evaluation of tissue temperature and lesion volume during irrigated RF ablation.

## Methods:

Five consecutive patients ( 5 males, age 70 ± 5 yrs) with atrial flutter (AFL) underwent ablation at two Centers using a 3.5mm Tempasure catheter system with fixed power set to 40W (± 10W) and irrigation flow. Average Fluoro time was 13.66min.

**Results:** Bidirectional block was obtained in 100% of the cases. Table 1 shows procedural results and Figure 1 depicts radiometer vs. Thermocouple performance.

	Total	% of total Ablation
Total Patients	5	
Total Ablations	113	
Number of Abl that did not reach 55C	50	44%
Number of ACT high temp cut-offs	13	12%
Number of Impedance cut-offs	2	2%
Number of TC cut-offs	1	1%
Number of pops	3	3%
Successful Treatment of A. Flutter	5	100%

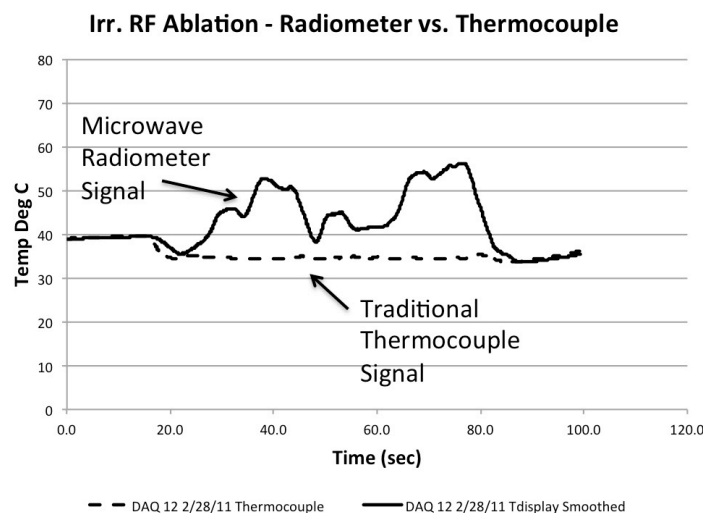


Fig. 1. Radiometer sensor in (Tempasure™) temperature-sensing catheter detects real-time tissue temperature rise at 3 mm depth whereas thermocouple is non-responsive.

**Conclusions:** Microwave radiometry technology provided real-time feedback on temperature at 3 mm depth in tissue. Control of the lesion formation with microwave radiometry sensing has the potential to enhance ablation outcomes.