We thank the reviewers for their close reading of the manuscript and detailed comments. We have incorporated all comments into the paper, including notation fixes, enhancements to the automata figures and suggested citations. Below we address comments warranting a specific response.

\* More than one reviewer:

-Even if currently lacking a model checker implementation, we think the results of this paper are still valuable to the community. The models motivate the need for an SHS model checker, and other members of the community might be motivated by this research to create one – we need not be the only ones pursuing this avenue, especially given the potential scalability issues. Also, that these systems admit a finite simulation is now established and other authors might wish to pursue a different approach to characterize and compute the simulation independent of ‘STORMEDness’. Finally, the results on SHS composition and approximation are of an independent interest.

-Modified Separability condition: we clarified (footnote p.3) that the new condition was introduced to correct a deficiency in [24], whose Separability condition was insufficient to guarantee minimal flow along phi. So existence of a finite bisimulation is guaranteed by the new Separability.

-Scalability is indeed an a priori concern. If it turns out that the necessary tools are non-scalable, then at least we know what limitations are faced by model checking, and we’re justified in pursuing non-formal methods. Future speed-ups in computation might revive MC as a verification technology.

Reviewer1:

-The introduction to Section 3 justifies the choice of this model. We added that it can simulate tachycardias, and that models based on ion currents will be more accurate, but likely more computationally expensive.

-The ICD automata were based on the publicly available literature. Rigorously validating them requires systematic conformance testing against a device, a process we are undergoing.

-The model checker should be for general SHS.

Reviewer2:

-We specified that the electrode positions on the myocardium should be chosen different from p\_{i,j} to avoid infinities.

-The measured bipolar electrogram is the difference of *unipolar potentials,* not cell voltages. To avoid confusion we re-worded this.

-In the paper we do mention that y(t) in Section 4 is non-differentiable at s(t) = 0, but that the peaks are always achieved away from 0. This means that we can avoid differentiating at 0 by inserting a mode which is entered whenever |s(t)|<<1 and exited otherwise, and in which no differentiation takes place. We skipped presenting this trick because of space limitations.

-Upon consideration we removed Section 6 since it adds little in terms of concrete results at this point.

-The novelty of Thm. 8.1 over the state of the art lies in the finiteness of the simulation that results from using an over-approximate Post operator (The mere existence of a simulation is not new, as we say in the Proof.).

-The related work is on pacemakers because there are no formal models of ICDs – ours is the first.

-We didn’t understand “It is not clear if the contribution about the existence of a finite simulation for SHS is valid despite the STORMED property”: if the reviewer is wondering whether the system would still have a finite simulation if it weren’t STORMED, then we haven’t explored that question. We added that finiteness *for a given dynamical sub-system* only requires o-minimality.

-The state space is bounded, in particular the clock states, by virtue of the fact that the system’s operation has an upper bound D to its operation as mentioned in Section 3. To be explicit, we have added an End mode to every automaton which is reached from any other mode whenever a VT/SVT decision is reached. In End, all clocks stop progressing.

Reviewer 3

To avoid the impression that the problem is “solved or on the verge of being solved”, we carefully reviewed the language. Please see above for scalability concerns.

Reviewer 4 (because this review was late, we are only able to address its main points)

-We updated Thm.7.1 to precise that Collection Separability is required only for reachable states.

-When a VT/SVT decision is reached, only the software variables that appear in the ICD automata are reset. The heart’s voltage indeed has memory, and we do note in the paper that APD restitution can be modeled without affecting the formal properties of the system. We clarified this in the text, and added a citation to [Grosu et al 07] to highlight that more sophisticated models exist.