

Midspan and Endspan Collisions

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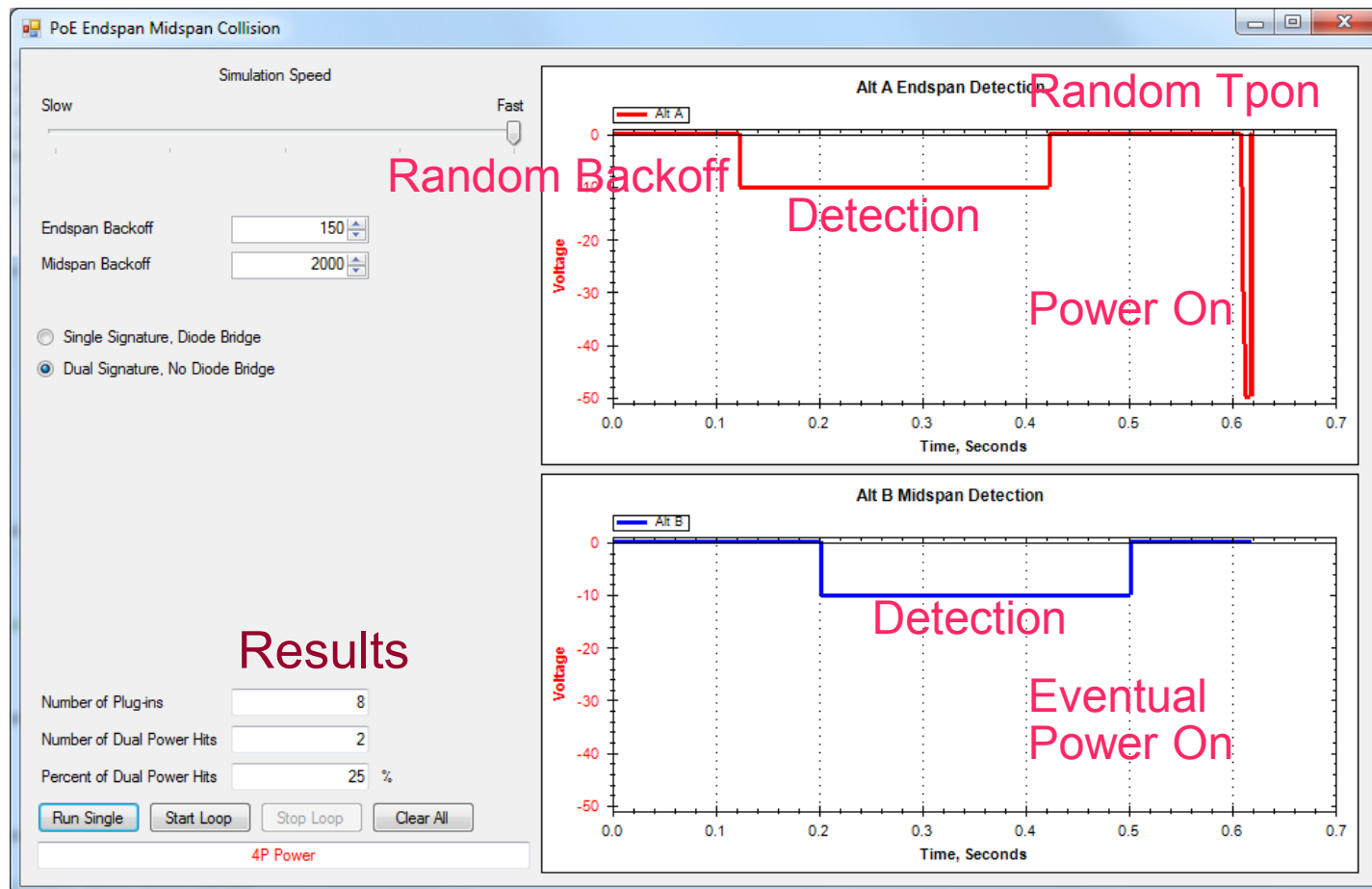
Motivation for this Presentation

- The specification, as written today, allows Endspans and Midspans to simultaneously power PDs formed from both single and dual signature resistances

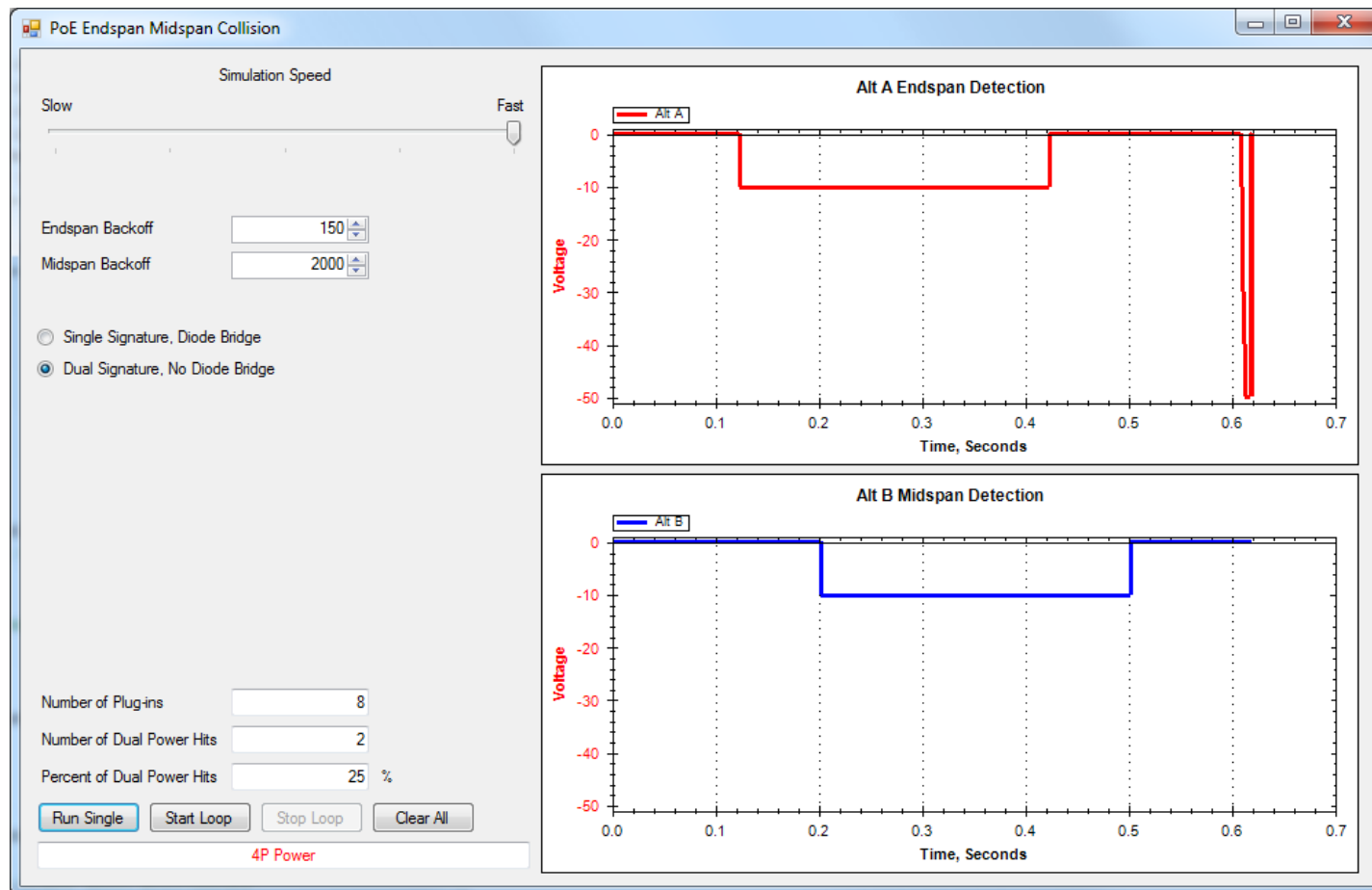
Collision Detector Simulator

Configurable
Backoff

Configurable
Number of
Signatures

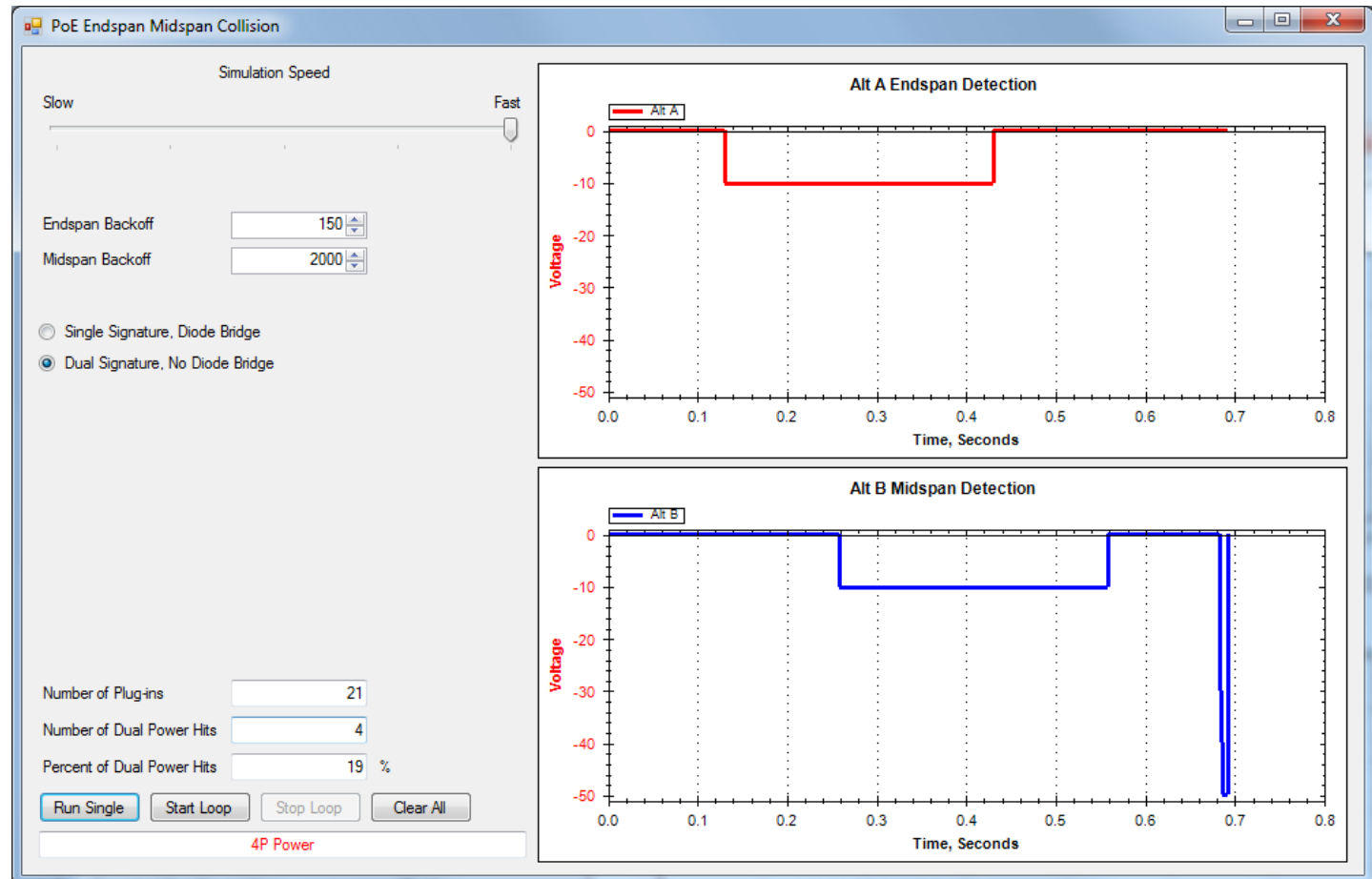


Scenario 1: Dual PD = Dual Power Applied



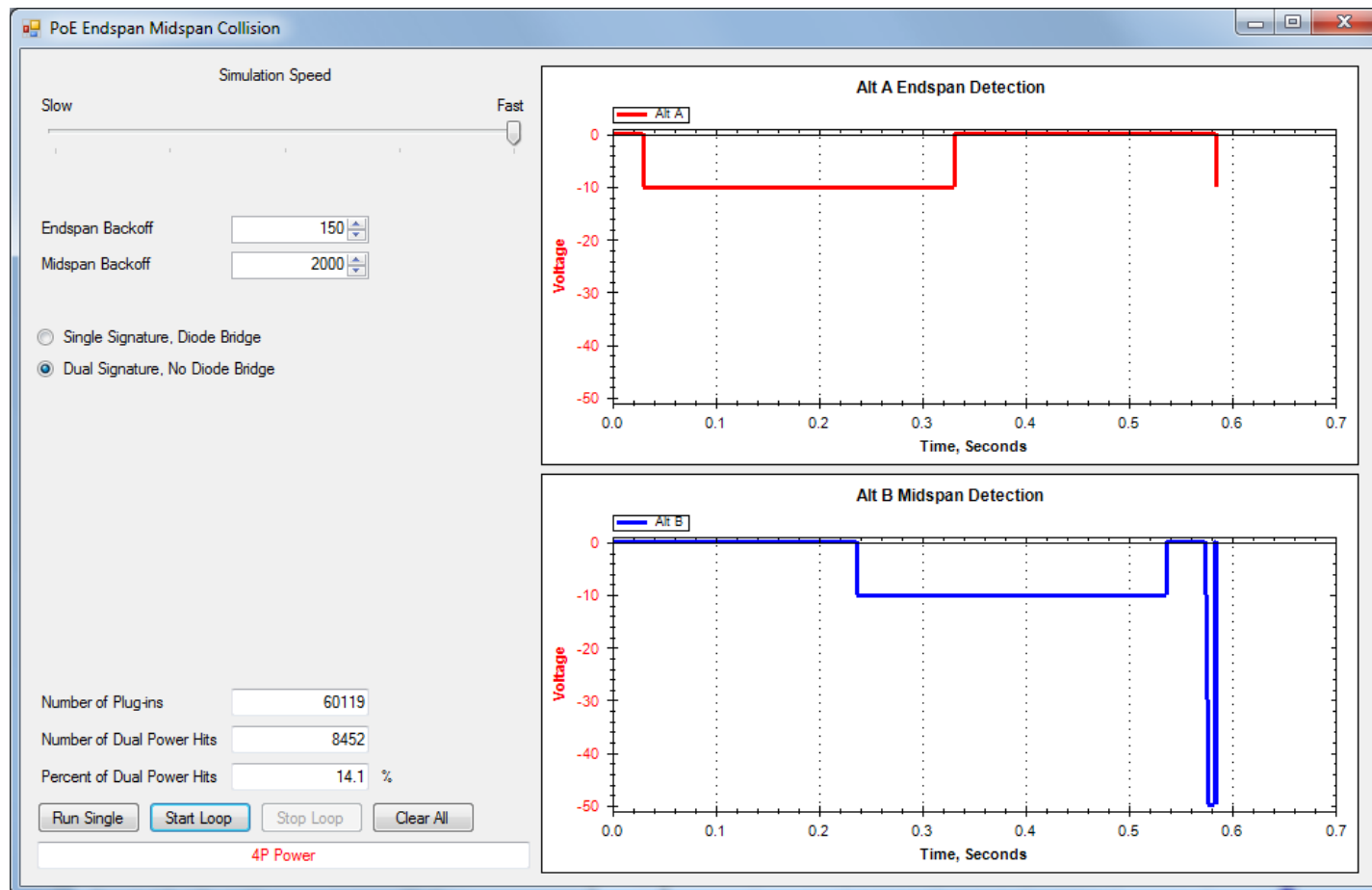
Detections do not pollute,
tPON allows both Endspan and Midspan to powerUp the PD

Scenario 2: Dual PD = Dual Power Applied



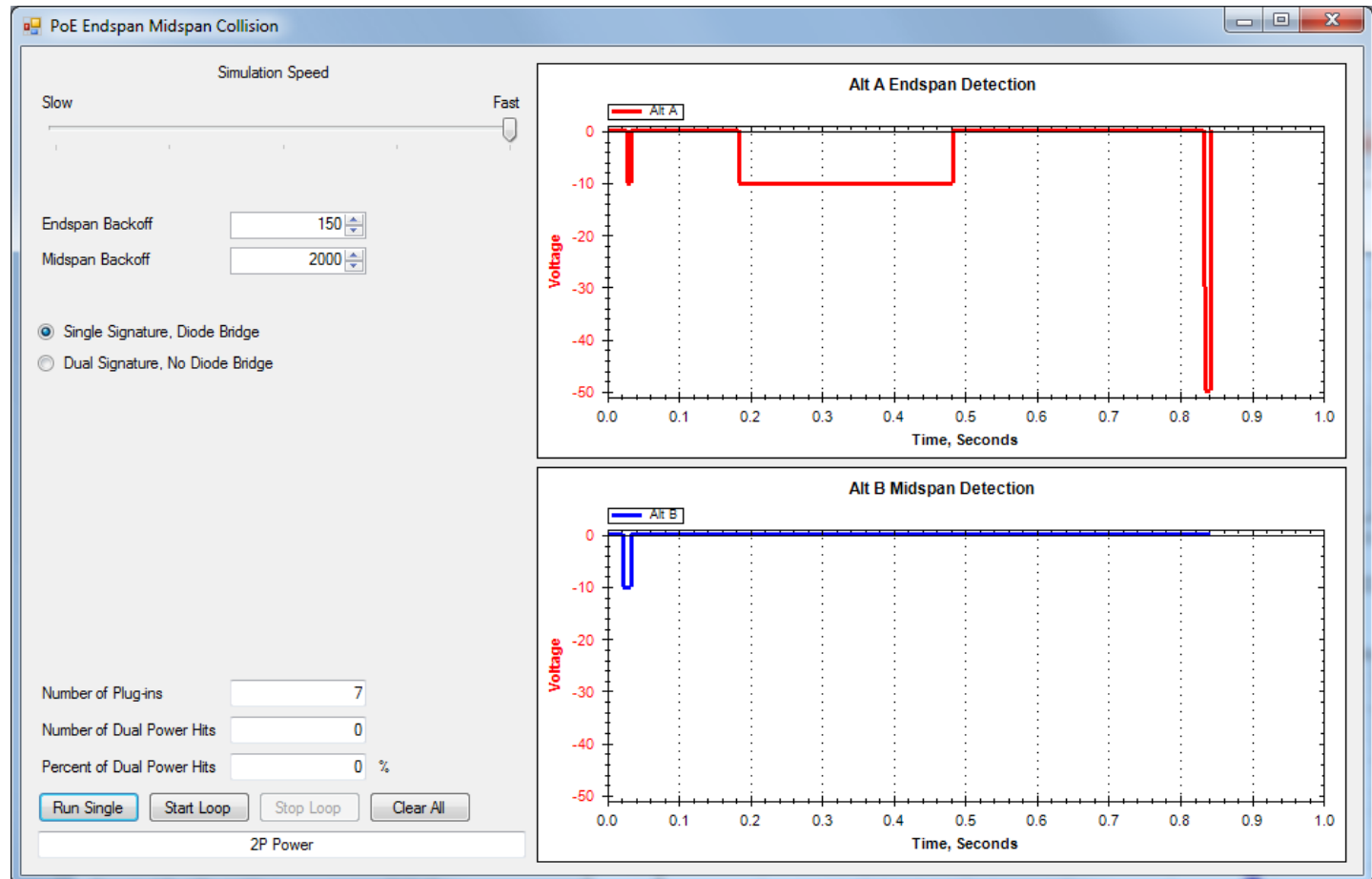
Detections do not pollute,
tPON allows both Endspan and Midspan to powerUp the PD

Dual PD Overall Results



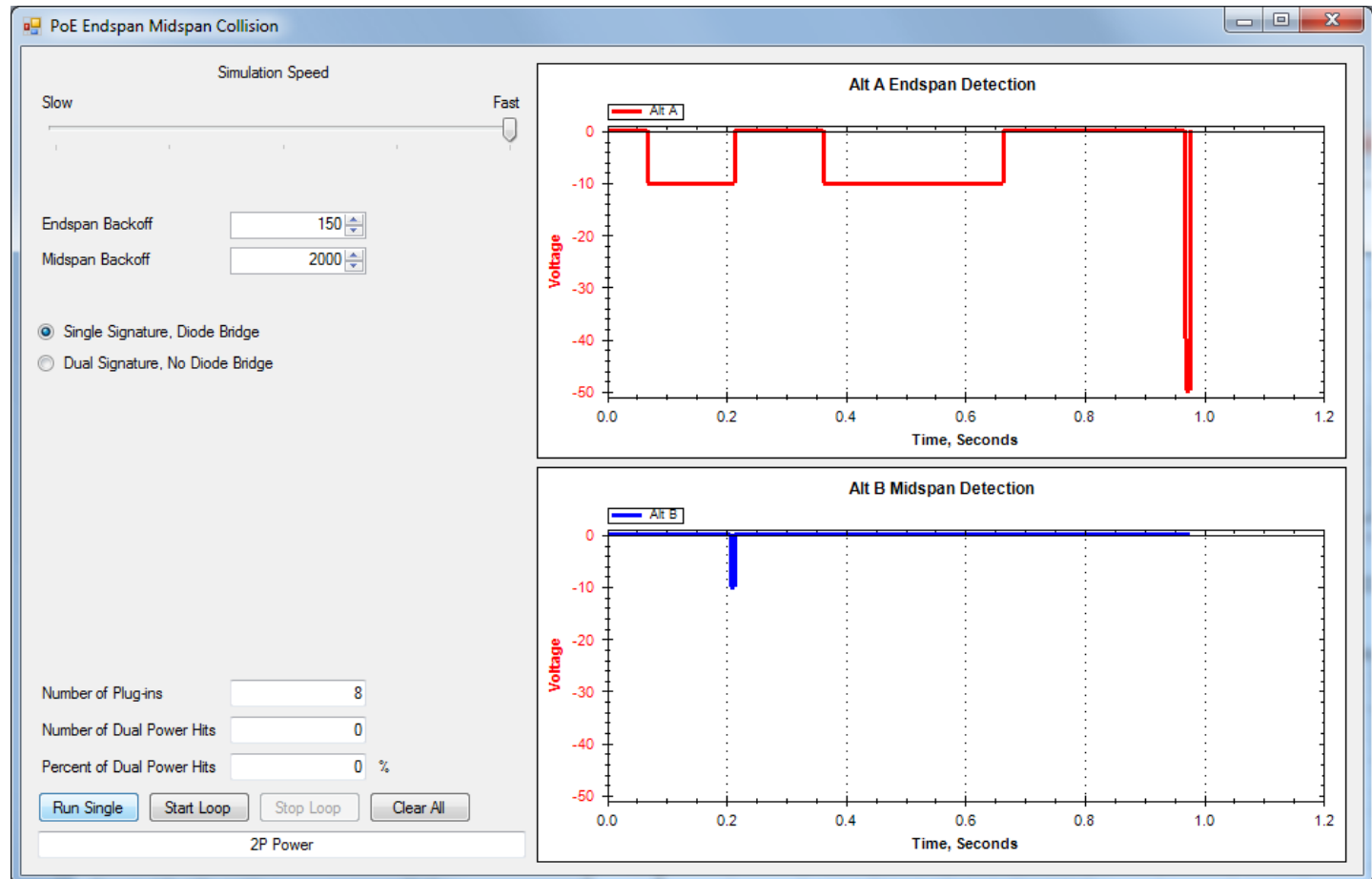
14.1% of Insertions are powered by both PSEs

Scenario 1: Single PD = Dual Power Rarely Applied



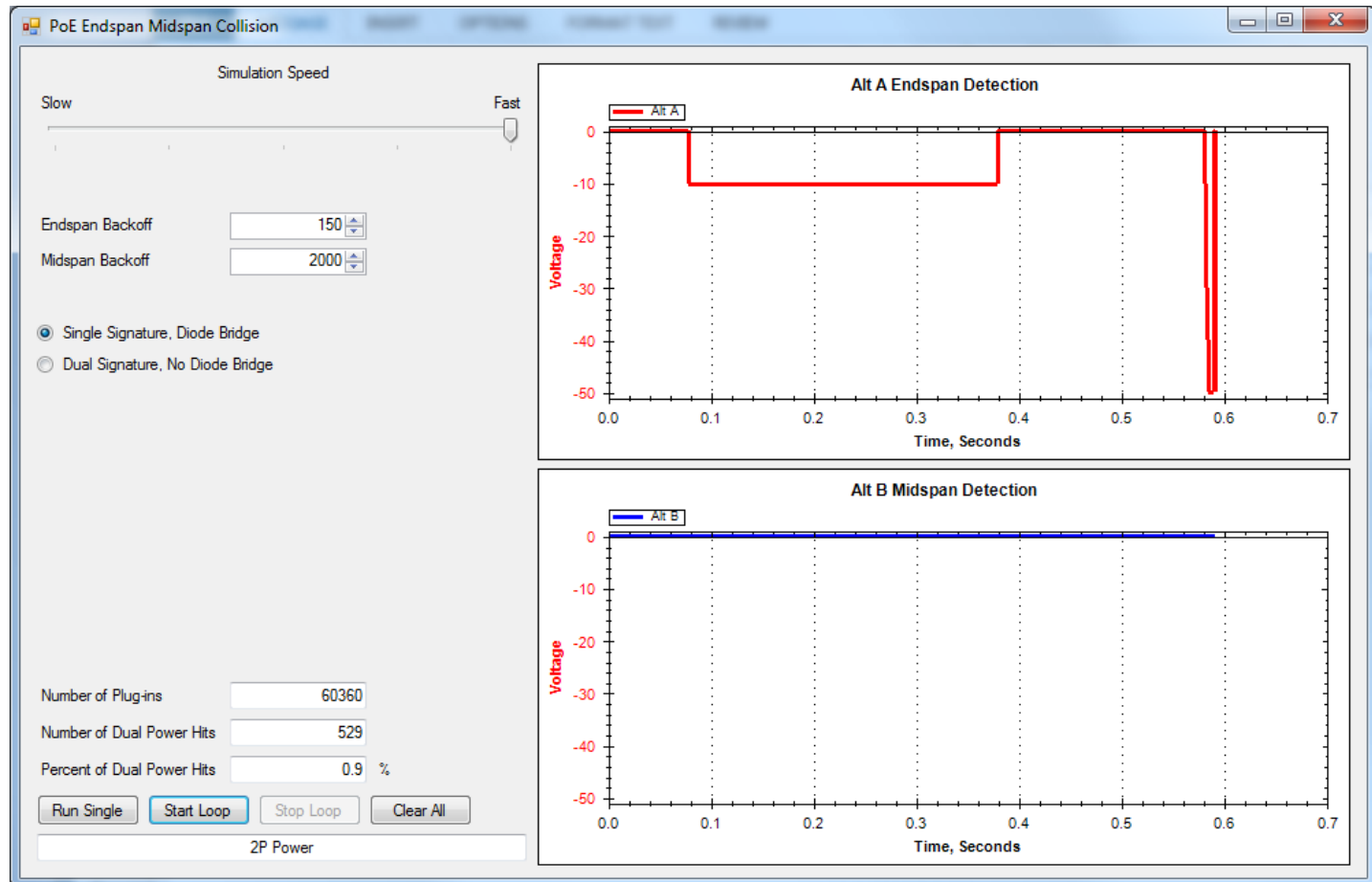
Detections pollute

Scenario 2: Single PD = Dual Power Rarely Applied



Detections pollute

Single PD Overall Results



Only 0.9% of Insertions are powered by both PSEs

Conclusions

- A hole exists in today's specification which allows unintentional powering by both a midspan and an endspan
- Holes can be removed by
 - Polluting during detection **and** poweron
 - Reducing or deleting tPON
 - Other ideas?