FSEMC Simulator Continuing Qualification Working Group

Problem Summary

Recurrent FSTD checking relies heavily on the objective QTG which may be good for validating a simulator data package but is not optimized for rechecking the integrity of an in-service simulator. Are there better testing methods that can more meaningfully and efficiently validate the state of an in-service FSTD therefor increasing the usefulness and reducing the burden of the recurrent qualification process?

Objective

Produce a standard or guideline that provides an alternate means of compliance for recurrent checking in a more efficient and meaningful manner.

Suggested Guidelines

Any proposed alternate recurrent testing methods will probably need to meet the following:

1. Method must maintain and ideally improve the integrity of recurrent checking.
2. Method should reduce burden on operators and regulators when compared to recurrent QTGs (or it would not be considered).
3. Method should be easily adoptable to different FSTD architectures (manufacturers, platforms, vintages).
4. Method should be automated and easily gradable.
5. Method must be acceptable to regulators as an alternate means of compliance and will not affect the core concept of the QTG.

Overview of some initial ideas discussed at SCQ kickoff

- Reduction in requirement for QTG tests that are not meaningful for recurrent validation
- More reliance on checking hardware and software independently
- Hardware repeatability tests and better hardware degradation checking methods
- Reliance on software integrity checks, software change verification methods
- Built in software test at either the system level and/or integrated level
- Creation of repeatability tests such as one master integrated signature test or a full model/simulation stimulation signature test

Reference material

1. FSEMC SCQ working group home page:
    http://aviation-ia.com/fsemc/projects/qtg/index.html

2. March 27-28 SCQ Working group announcement and information:
    http://aviation-ia.com/events/ScqAnnounce.pdf

3. Meeting Notes from SCQ kickoff. Atlanta STIG, December 2016
    http://www.aviation-ia.com/cf/store/catalog_detail.cfm?item_id=2752

4. *Simulator Re-Evaluations and Re-Validation Issues as Related to Regulatory Requirements*, Arnab Lahiri, Eric Fuilla-Weishaupt
    http://aviation-ia.com/fsemc/projects/qtg/Working_Paper_Data_Validation.pdf

5. *The QTG – Some Perspectives, Malcom Blackwell*
    http://aviation-ia.com/fsemc/projects/qtg/QTG_Perspectives.pdf