

Status of the rocs interlock system

Principle of operation

- Verification triggered by a FEI event (unique event currently)
- Verification based on n samples in the ADC history buffer
- Comparison with reference function or Golden value
- Golden value, Tolerance are user parameters per channel.
- Partitioning
 - o Available: geographic partitioning (cycle exclusive ← software)
 - o Required geographic partitioning, cycle independent

Tests done so fare

- Principle of operation verified
- Signal interface with BIC

More info required

- Stability of surveyance signal (estimation of noise, measurements in progress)
- Execution delays (i.e. how close before the extraction can we measure)

Further improvements needed (not for September)

- Simplified hardware (no 2*64 LEDs channel status panel, display can be made on terminal)
- Mutiple outputs for partitioning up to 7 partitions
- Golden value per known cycle (multi cycling)
- Remove requirements that all known cycles should have a function loaded
- Improved Application Interface (sps2001 / equip?)
- Golden value update policy (for discussion)
- Add start-function watchdog option, (generate dump if rocs not functioning)

Golden value update policy (2 options)

- Golden values can be updated explicitly by operator.
 - o How are golden values derived? Automatically by setting management when a function is trimmed or loaded?
 - o Potentially dangerous, no verification of the actual cycle operating correctly!
- Upon request, golden values are set to average of measured data over last n-cycles.
 - o New function loaded has to execute first a number of times before one can update the golden value.
 - o HW interlock should depend on beam intensity (masked for pilot beam intensities).