Preliminary Recommendations for GAS – 1 Testing
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Categories

Design Functionality
Performance Testing
Production Tests
Assembled Preamp Board Testing

Design Functionality (Hand wired board.)

1. DC Impedance, expected connectivity.
2. Power up. Supply current, input / output voltages, offsets.
3. DC voltage gain input to output.

(Scope based tests)

4. Self oscillation sensitivity, preliminary noise.
5. Preliminary pulser impulse response. Pulse amplitude, shape, crosstalk.

Performance Tests (Hand wired test socket board/ Prototype production board.)

Primarily scope based tests

1. Impulse range, linearity.
2. 1/t shape, range, linearity.
3. Pulse shape vs capacitance.
4. Noise vs capacitance.
5. Parameterization: Uniformity of amplitude, shape.
6. Temperature and Voltage sensitivity test.

Production ASIC (Test Socket pc board.)

Automated testing program either fully automated or operator interactive.
Chips replaced in labeled trays, labels and or tray position recorded.
Data stored in protected database.

1. Power Up Current test with current limit.
2. Output Offset.
3. DC gain.
4. Pulse amplitude test.

Preamp Board Level Testing

Parametric limits based on choice of best chips in database.

1. Corrective offsets may be applied using resistors at input if necessary.
2. Chips assembled on boards must be retested with a subset of production tests.
3. Boards should be burned in for 100hrs or more at ~90C and retested.