

NLCTA Startup Status

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Status:

- 1) The new structure pair (T20/T105) is now operating at 150 MW 25ns (FW 90% Max). All of the fault counters have been set and signed off. A complete drawing has been posted at the rack and in the log book. As the pulse width is raised, the counter thresholds will be re-tested. The 'missing energy' interlock (compares SLED out and structure load forward) has been set to trip at 30% power loss through the system.
- 2) Following sign-off, the control program has been set to ramp at 0.5% / 2 minutes. The observed fault rate is quite low. We now have about 82 hours of operation (most of which was used for checkout ~80 MW 25ns). Most faults are from T105.
- 3) The voltage driven pulse width control was modified to have the correct 'fail-safe' response and was also internally adjusted to correspond to the correct electrical length of SLED (60 cycles at 238MHz). For some reason, the AFG is programmed to 61 ns; offset by 4 ns. The system is working well.
- 4) The LABVIEW control program is working well. The pulse amplitude is restored quite soon following the fault, very smoothly, followed by the pulse width. It was updated to concurrently control the operation of DDS3, using the older hardware and protocol.
- 5) The vacuum pressure remains low, although the operation of T20/T105 can be seen from the history records of the gauges. (The gauges are about 100x more sensitive than the pump currents). The peak pressure rise is about 1 nTorr, just downstream of T20.
- 6) The normalization of the forward RF ASTS analogs is complete. The calibration done 9/00 needed a slope and offset correction.

Plans:

- 1) Today we will work on documentation (drawings, cable labels and procedures), operation of the pulse and acoustic sensor data acquisition and stress testing of the LABVIEW control program.
- 2) Cable labels will be attached to the primary heliax monitor cables.
- 3) Procedures for testing the Missing Energy and reflected energy will be written.
- 4) First iteration of normalization of the ASTS analogs will be done.