LD2502 Q3 Report - Multiple Mode Excitation System for Processing Multicell SRF Cavities

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- **Progress**
  - Order Placed for Software Defined Radio
    - Manufacturer: Per Vices, Model: Crimson TNG, 4 input and output RF channels, $21k
    - Expected delivery in early March
    - Also purchasing a powerful desktop PC to communicate with SDR and process data
  - LLRF team made a proof-of-concept demonstration that existing CEBAF LLRF systems can be re-programmed to excite and control multiple RF frequencies
- **Next Steps**
  - Software development to use SDR to measure cavity signals
  - LLRF Development on CEBAF chassis to move multi-mode past proof-of-concept
  - Demonstrate multi-mode stimulus on a cavity in the VTA, around April
- **Issues**
  - SDR manufacturers charge large fees for FPGA development on their hardware
    - Evaluating other methods for cavity control (brains) while using the SDR for signal generation and acquisition
    - Alternate FPGA hardware on a more flexible platform (PXI?), factoring in system latency, connectivity, ease of development, and cost
    - Working on design now, plan to execute design and software work in Year 2

Work funded by Jefferson Lab LDRD

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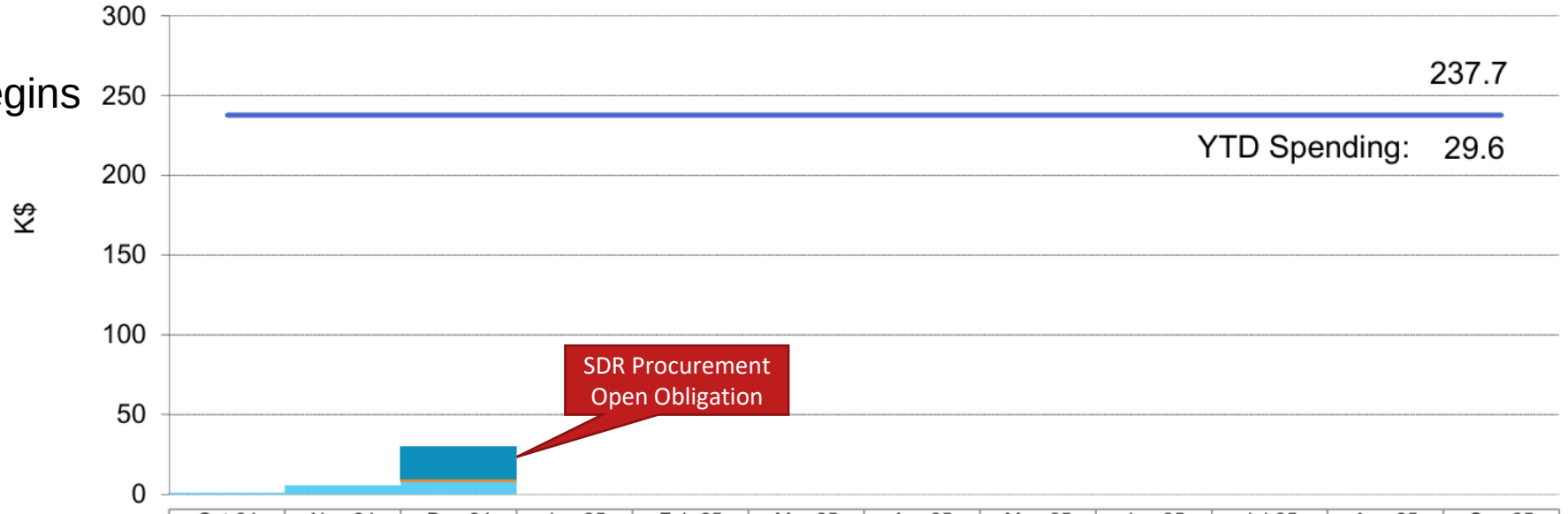
- **Financial Report**
  - First major purchase complete - SDR
  - $10-15k spending soon for PC and RF hardware
  - Labor will increase as software development begins

WBS 1.04 Accelerator LDRD Projects
FY25 Period 03 - December 2024

Multiple Mode Excitation System for Processing Multicell SRF Cavities
Peter Owen - LD2502 - WBS 1.04.LD.015.001
FY25 Budget: $237.7 Loaded K$



	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25
YTD Spending	0.937	5.535	29.605	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Pending	0.000	0.000	20.195	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Open Obligations	0.000	0.000	1.144	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Expenses	0.000	0.034	0.034	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Labor	0.937	5.501	8.232	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Funding	237.7	237.7	237.7	237.7	237.7	237.7	237.7	237.7	237.7	237.7	237.7	237.7

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