



U.S. DEPARTMENT OF  
**ENERGY**



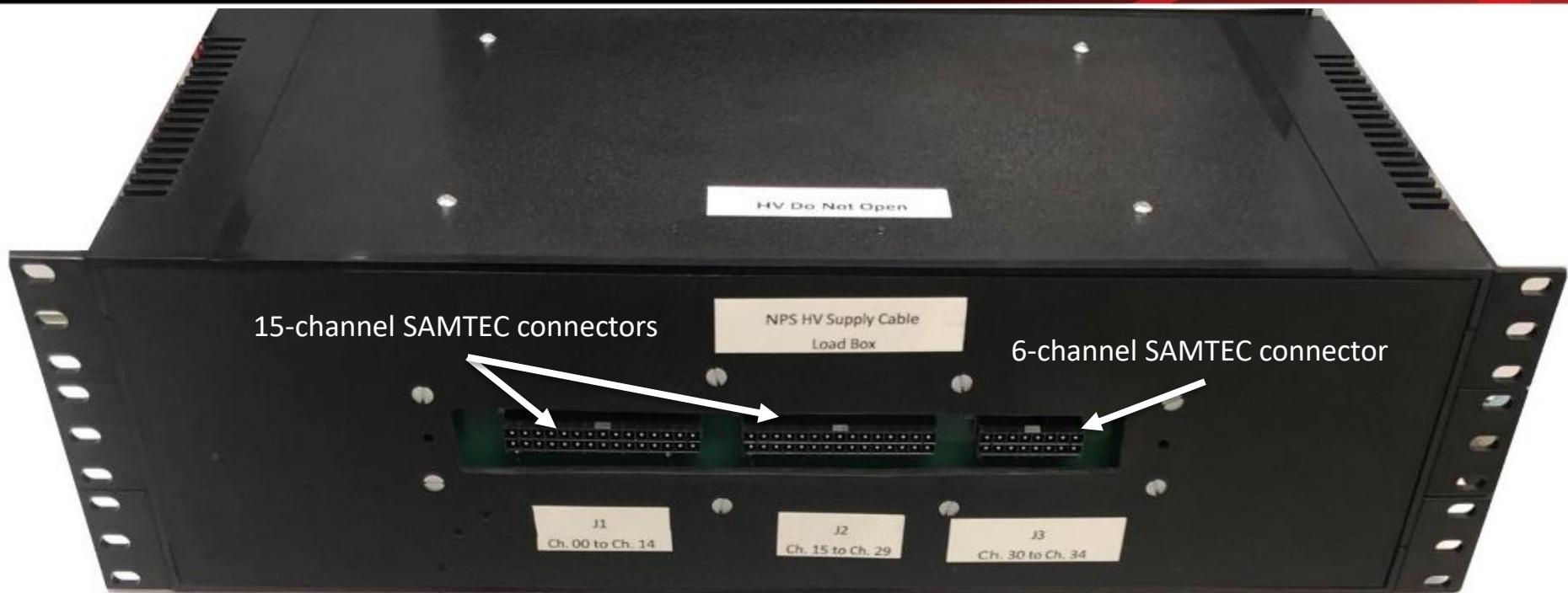
# DSG NPS Collaborators' Meeting Update

Aaron Brown and the Detector Support Group  
April 15, 2021

# Contents

- HV Supply Cable Testing
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# HV Supply Cable Testing - Chassis Fabrication

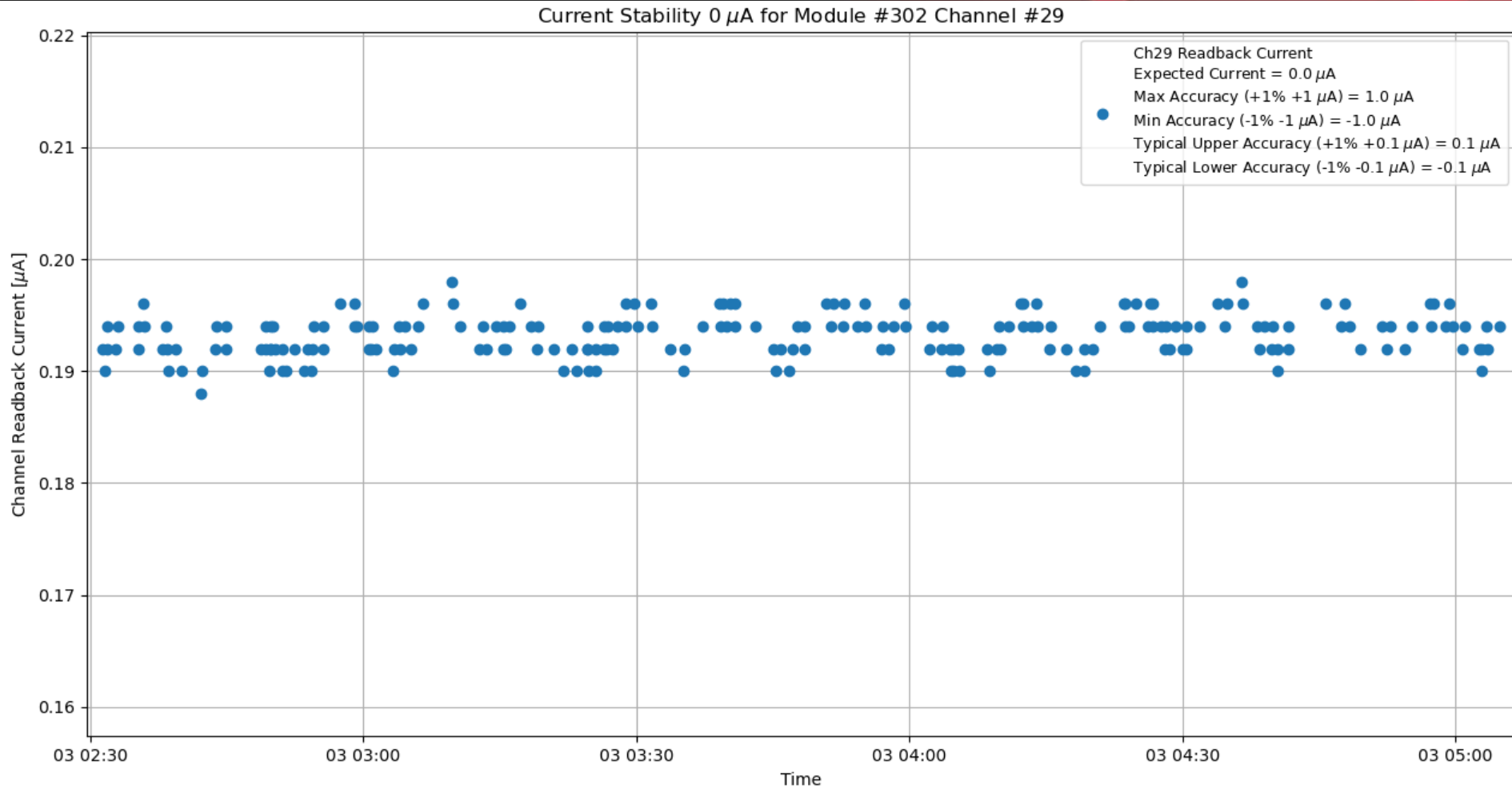


- Completed chassis fabrication
  - Two 15-channel and one 6-channel SAMTEC connectors on PCB behind front panel of plastic test chassis
- Planned supply cable tests
  - 2000 V switching test
  - No-load switching test run on channel #s 1, 2, and 3
    - Channel #2 turned off
    - Current of adjacent channels (1 and 3) monitored
  - 2000 V long-term cable test

# HV Supply Cable Testing - Preliminary

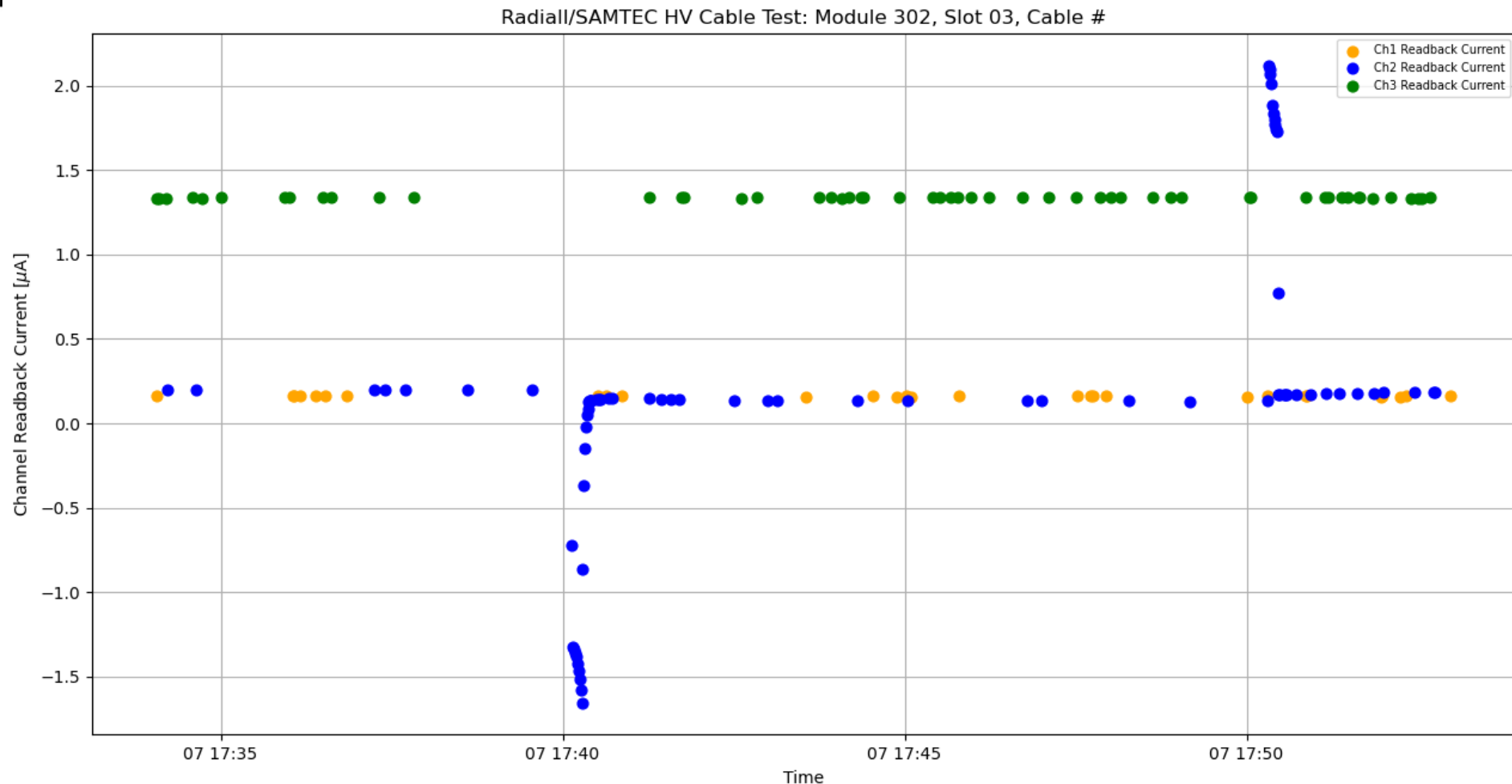
- Five cables connected to CAEN A7030TN HV modules
- Voltage set to 2400 V
- Current and voltage monitored for ~1 week
- Cables visually inspected once every other day to check whether damage has occurred
- Data is being analyzed

# HV Supply Cable Testing - Preliminary



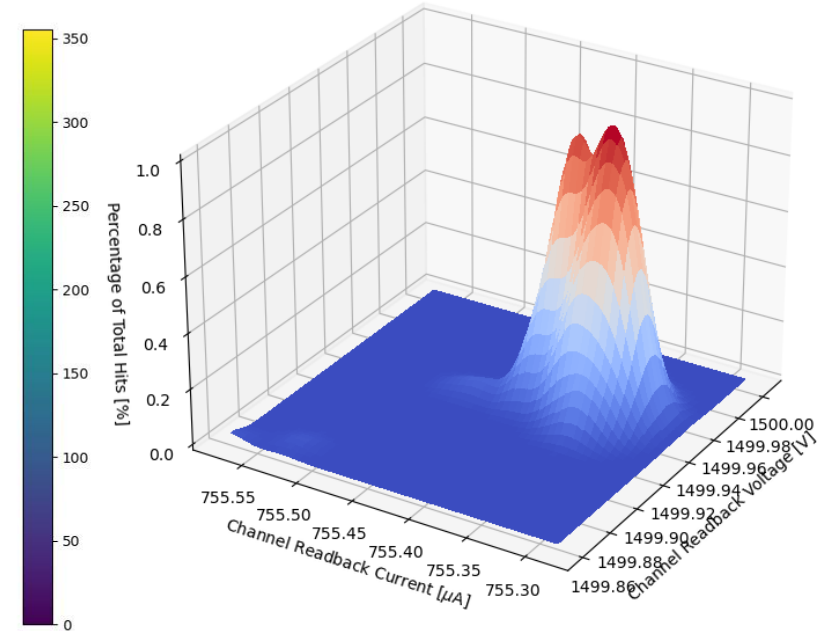
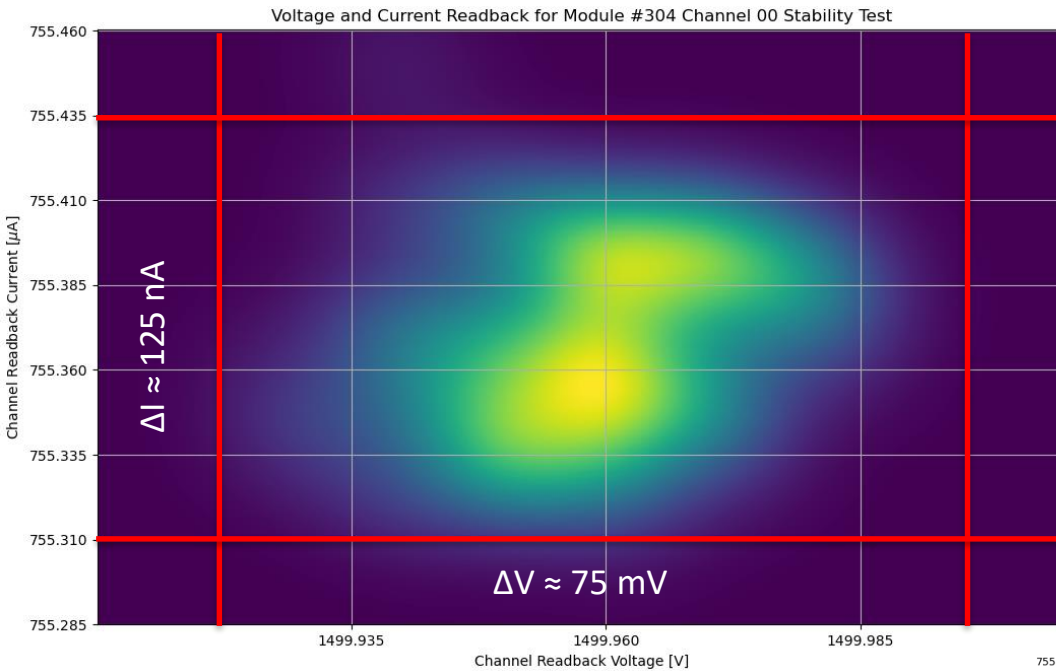
- Current data for cable connected to module #302, channel #29, over a three-hour period
  - Average baseline current is ~193 nA

# HV Supply Cable Testing - Preliminary

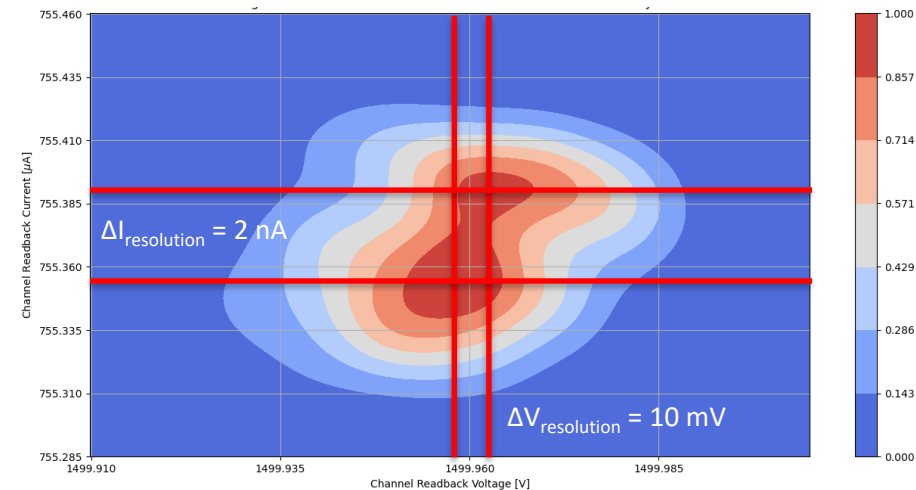


- No-load switching test run on channel #s 1, 2, and 3
  - Channel #2 turned off
  - Current of adjacent channels (1 and 3) monitored – no change in current

# A7030TN Voltage vs. Current Plots



- Plot of current vs. voltage of CAEN A7030TN HV module's stability data
- Enables estimate of maximum fluctuation for current and voltage and their readback resolutions over the acquisition period ( $\sim 24$  hours)



# Conclusion

- Mindy Leffel fabricated six of 40 HV Supply cables
- Marc McMullen and Mindy Leffel fabricated the HV supply cable test chassis
- George Jacobs and Aaron Brown have been conducting no-load testing of five cables for past two weeks
  - No-load test establishes baseline
  - 3-M $\Omega$  load testing (current draw 67  $\mu$ A) will start this week



**THANK YOU!**