



# DUNE Massive Tests

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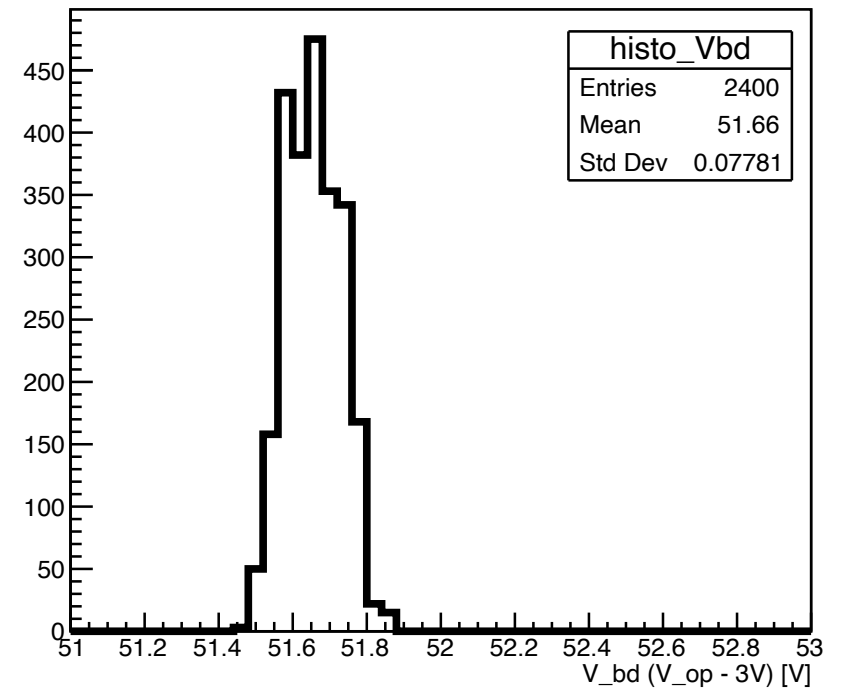
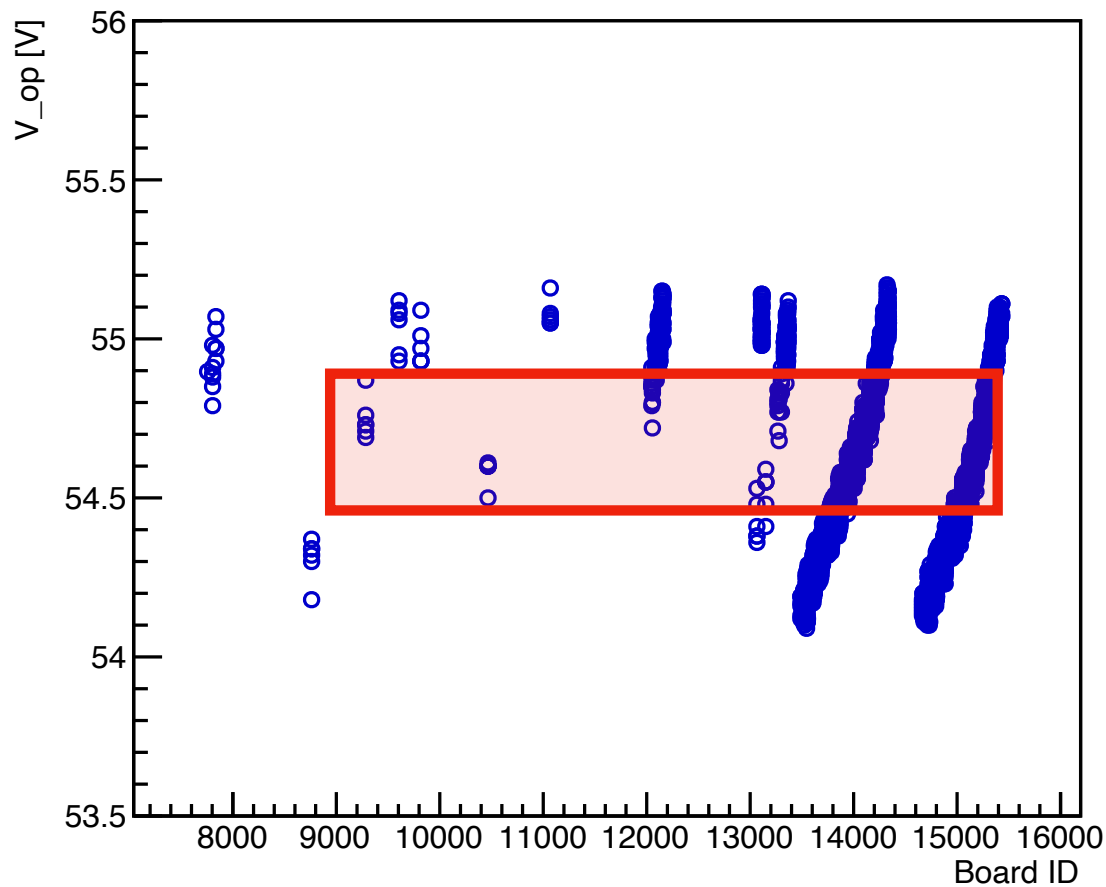
26 March 2024



# BOX 32 (Delivery 7)

**GRANADA BATCH FOR RUN3** TRAYS 49 - 72 (Boards 9284 -15312)

Hamamatsu Delivery 7: Data room temperature



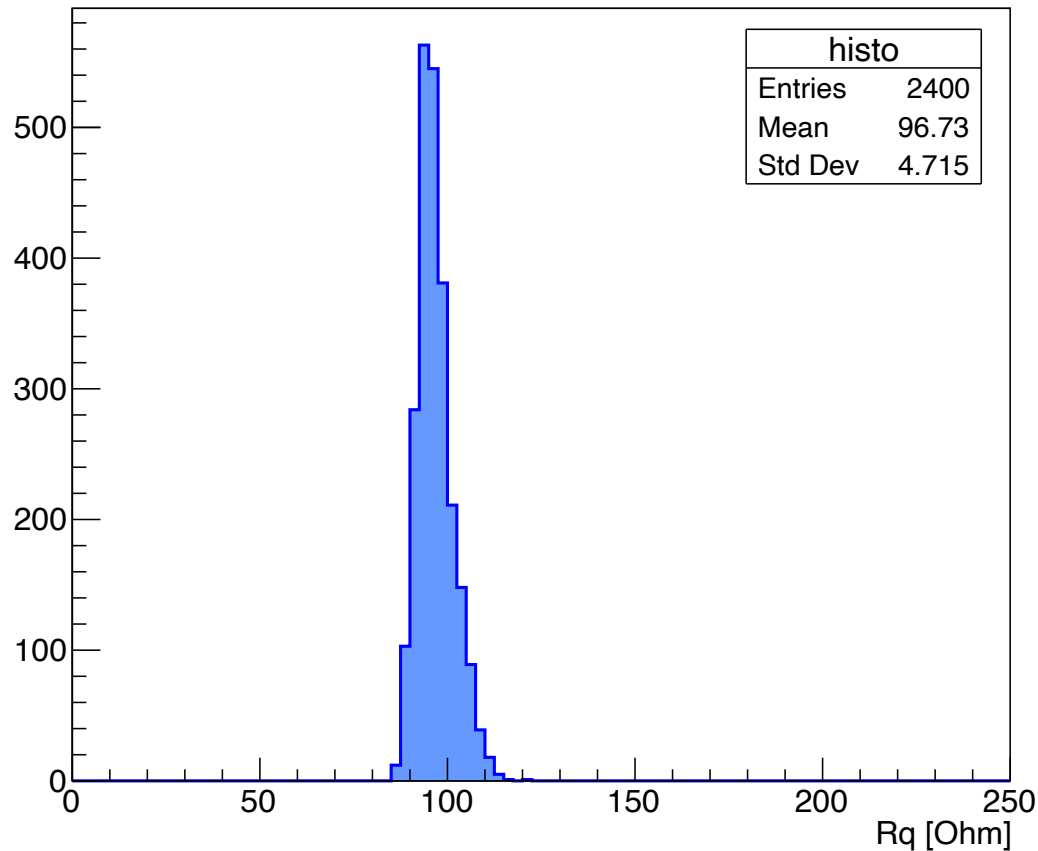
$V_{OP}$  [54.44 - 54.88] V

$V_{BR}$  [51.44 - 51.88] V

$V_{BR} = 51.66 \pm 0.08$  V

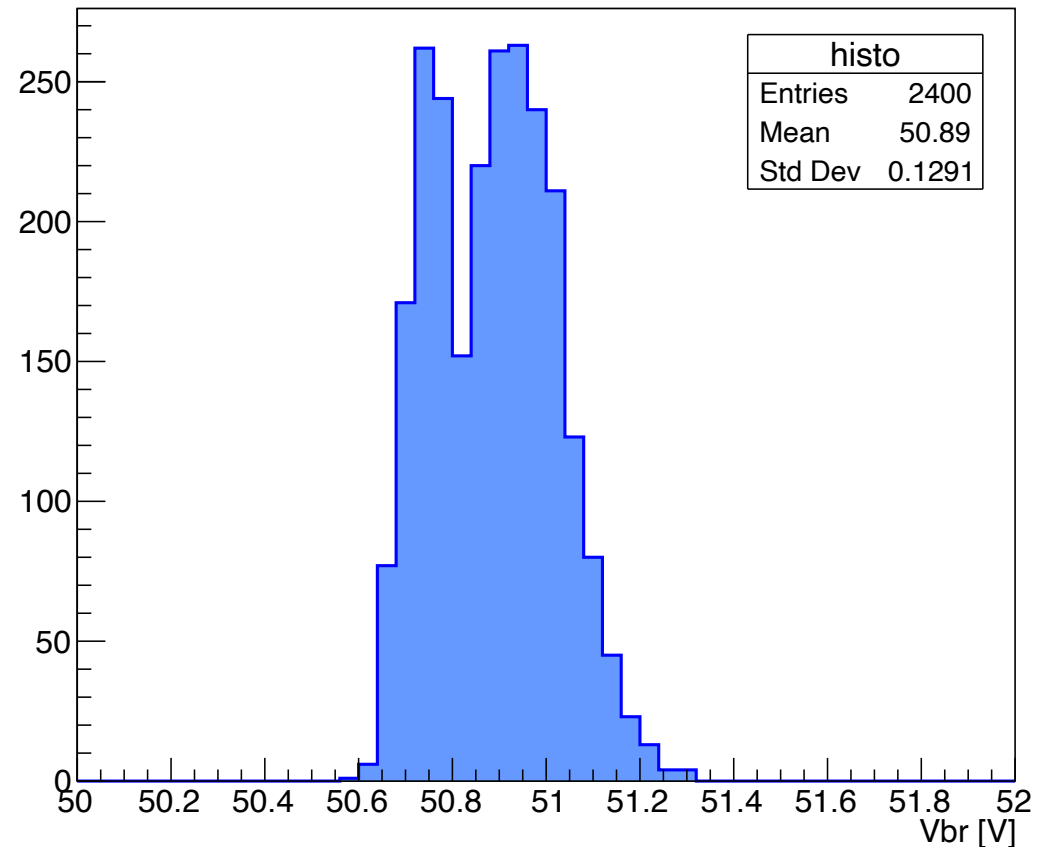
# RESULTS: IV CURVES ROOM TEMPERATURE

## FORWARD



0.6 V disagreement with the value provided by HPK

## REVERSE

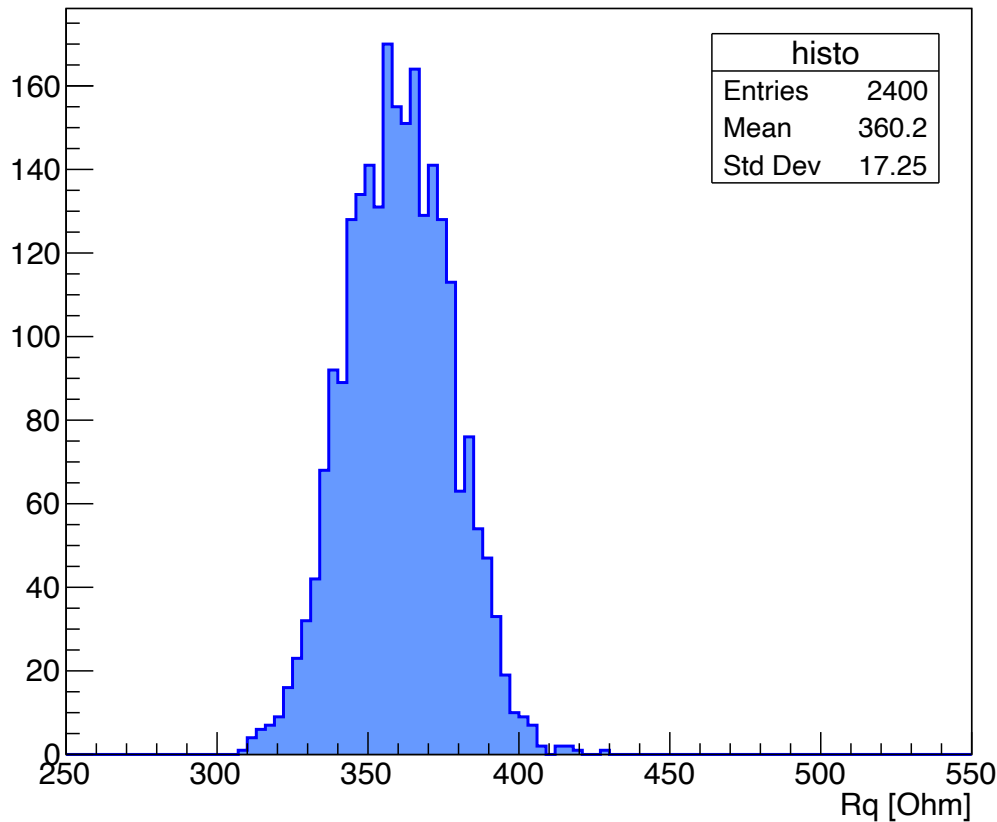


$$V_{BR\_lab} = 50.9 \pm 0.1 \text{ V}$$

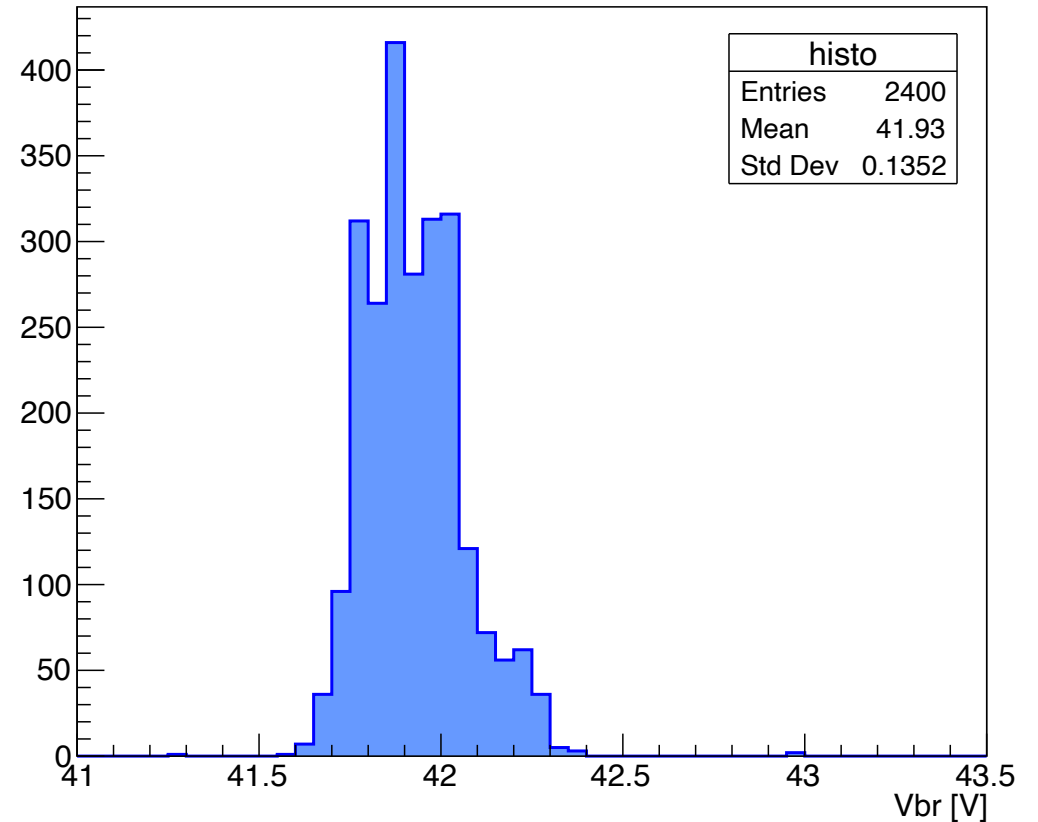
$$V_{BR\_HPK} = 51.66 \pm 0.08 \text{ V}$$

# RESULTS: IV CURVES LN<sub>2</sub> (FIRST CYCLE)

## FORWARD



## REVERSE

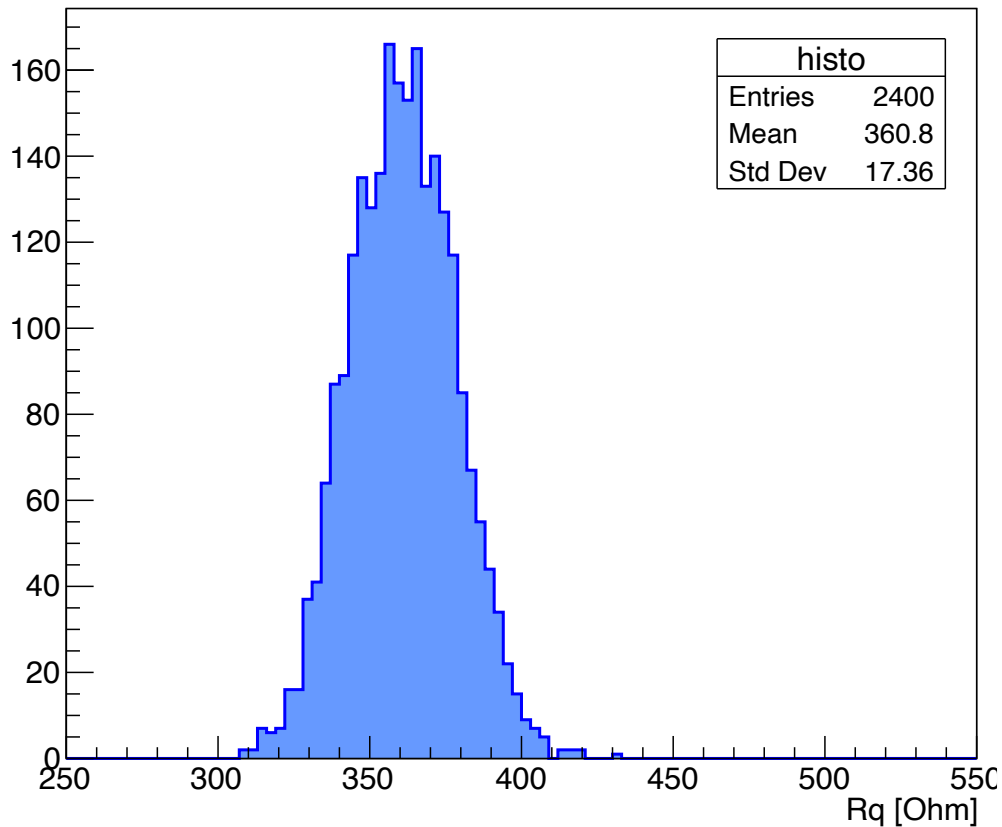


Trend within the specs: larger value of  $R_q$  and smaller value of  $V_{bd}$

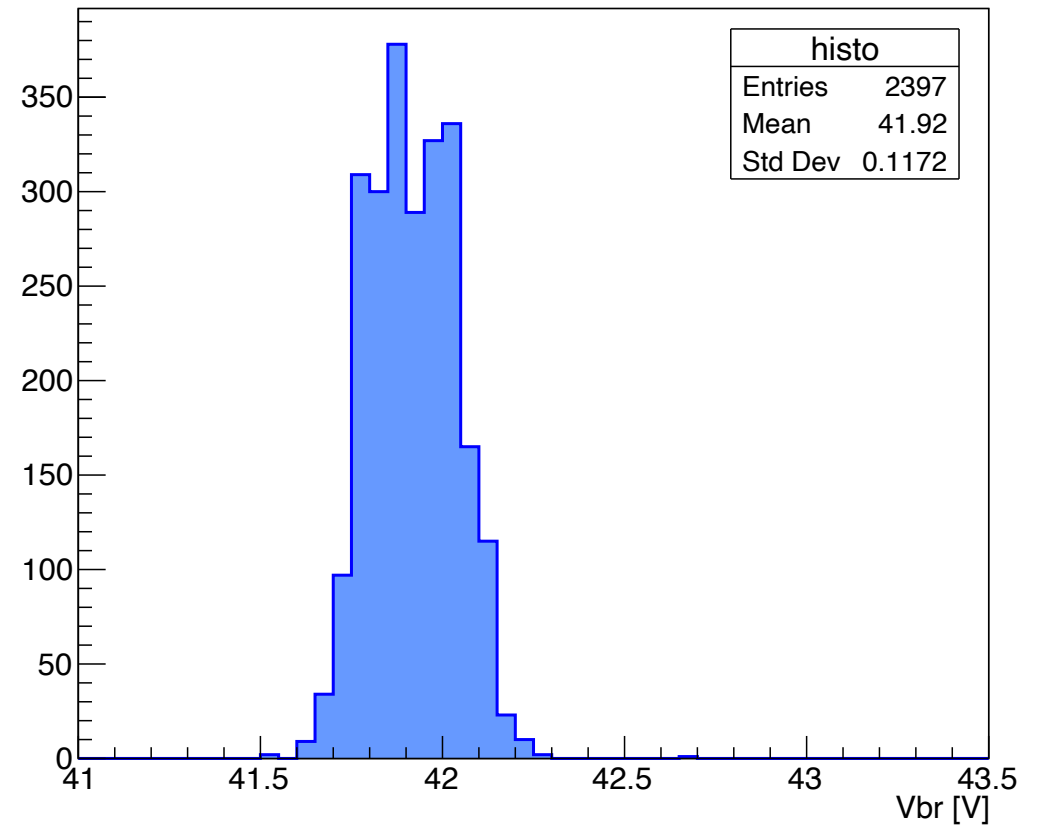
# RESULTS: IV CURVES LN<sub>2</sub> (THIRD CYCLE)

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## FORWARD



## REVERSE

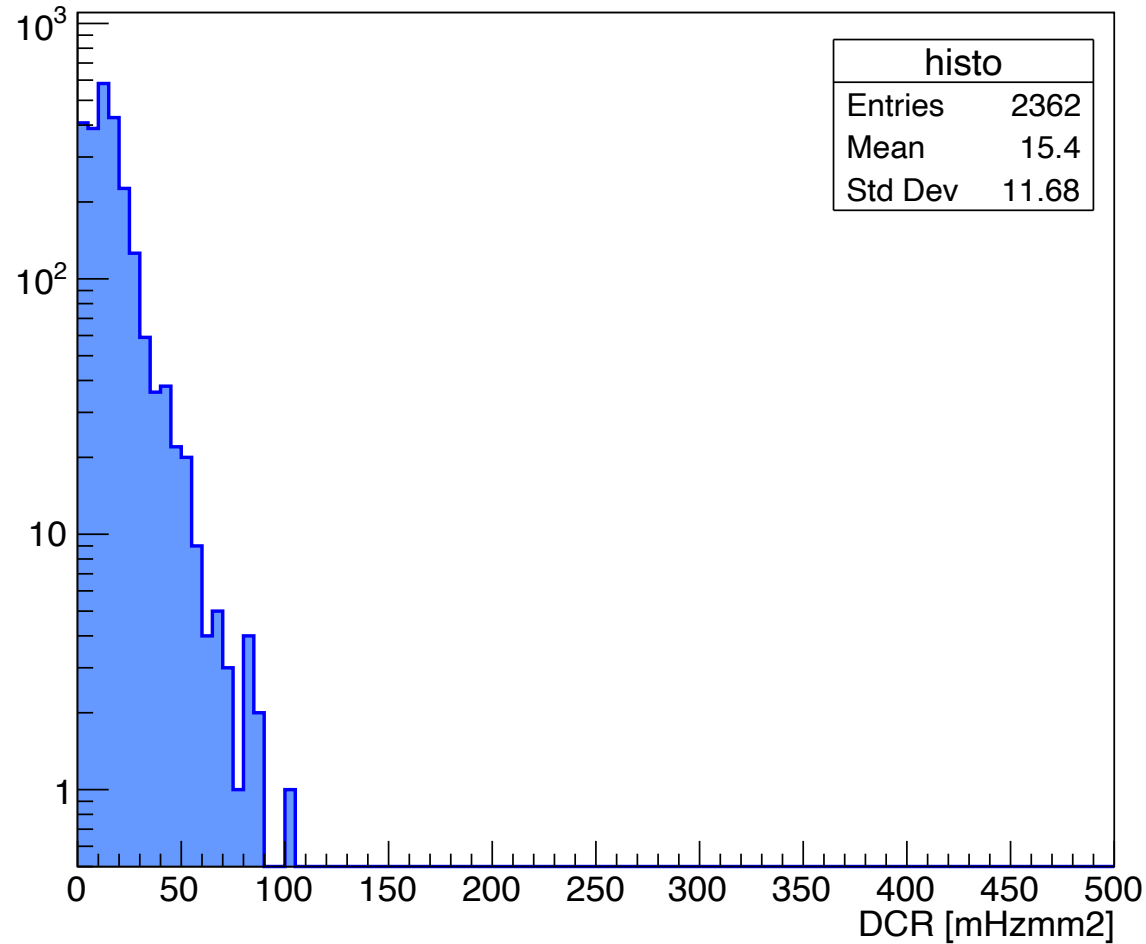


Values of the third cycle compatible with the values of the first one

# DCR MEASUREMENT

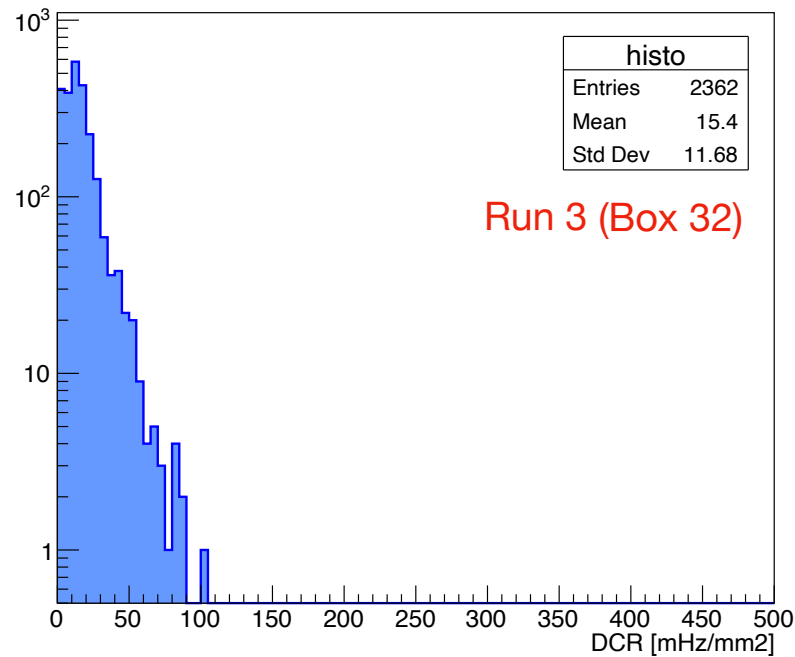
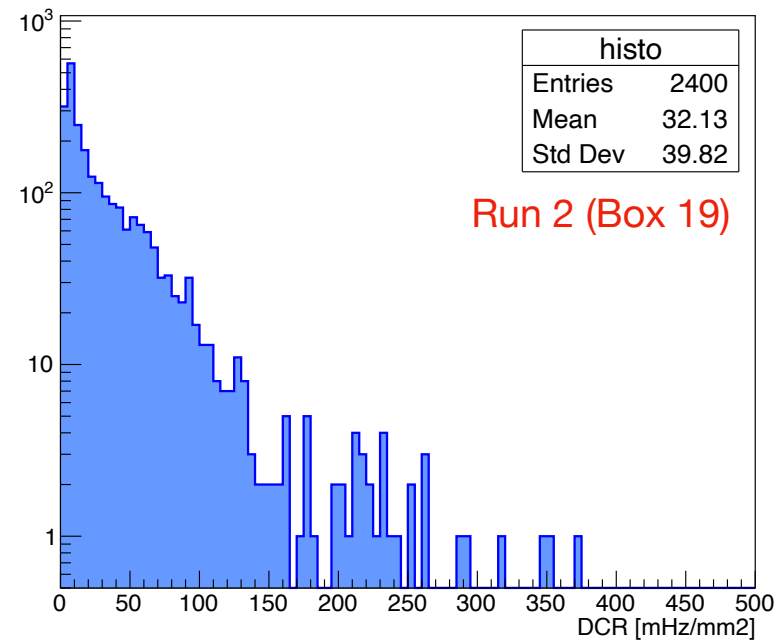
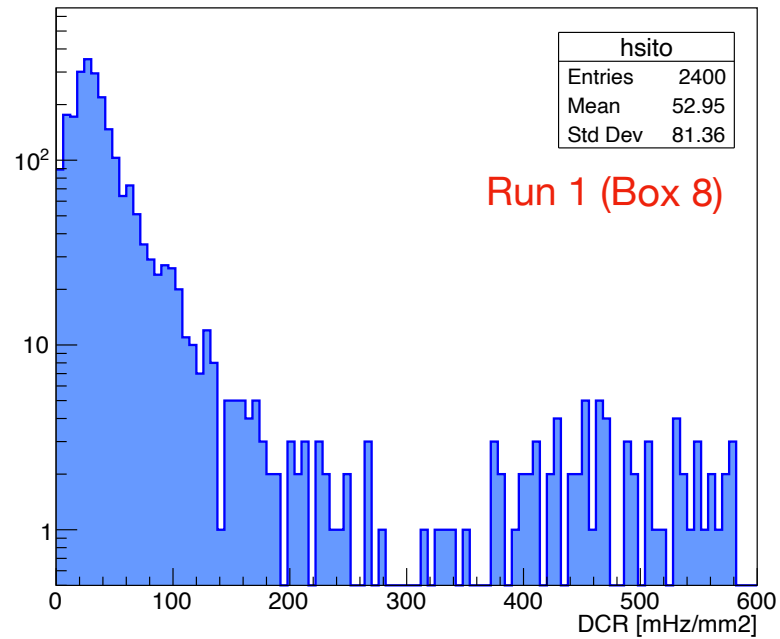
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## THIRD CYCLE



All the SiPM tested are below 100 mHz/mm<sup>2</sup> (DUNE requirement)

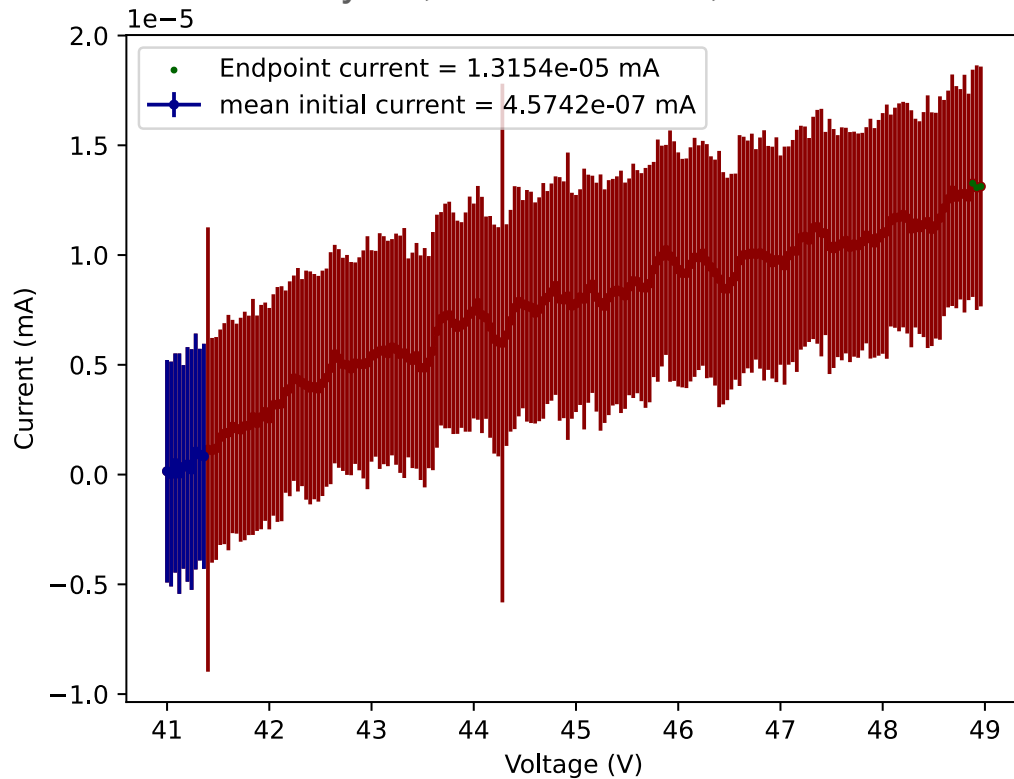
# DCR: COMPARISON WITH PREVIOUS MEASUREMENTS



# FIRST NOISY SiPM IDENTIFIED

SiPM ok

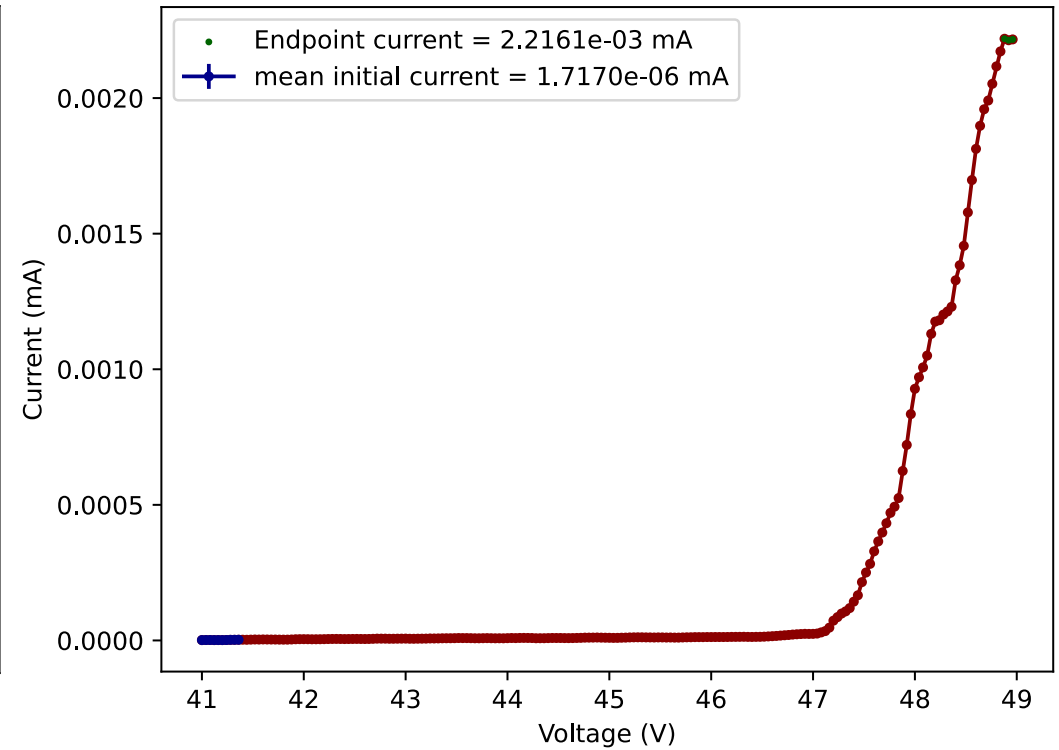
Tray 56, Board 15143 , SiPM 1



DCR = 5.7 mHz/mm<sup>2</sup>

SiPM noisy

Tray 56, Board 15143 , SiPM 5



DCR = 9130 mHz/mm<sup>2</sup>