# FOX

CERN Tests: Disconnecting and Reconnecting MTP Connectors

- Each MTP connector was disconnected and reconnected for two trials in the LArDPS to eFEX configuration without splitters.

- Two measurements were taken after each disconnection/ reconnection.

- Graph on next slide shows difference in a given light input measurement and the previous light input measurement.

- There was a maximum of about 1dB of variation before and after disconnecting and reconnecting the MTP connectors.

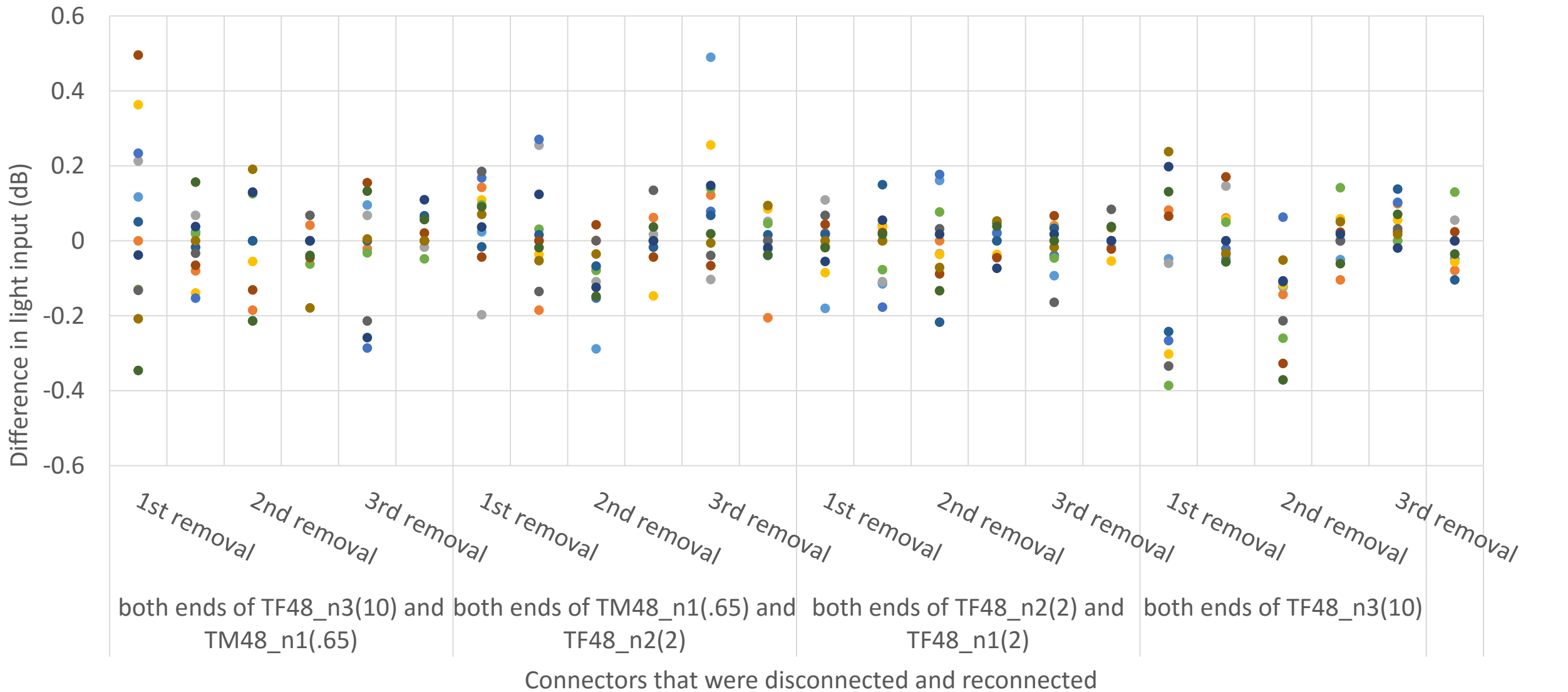# CERN Tests: Disconnecting and Reconnecting MTP Connectors
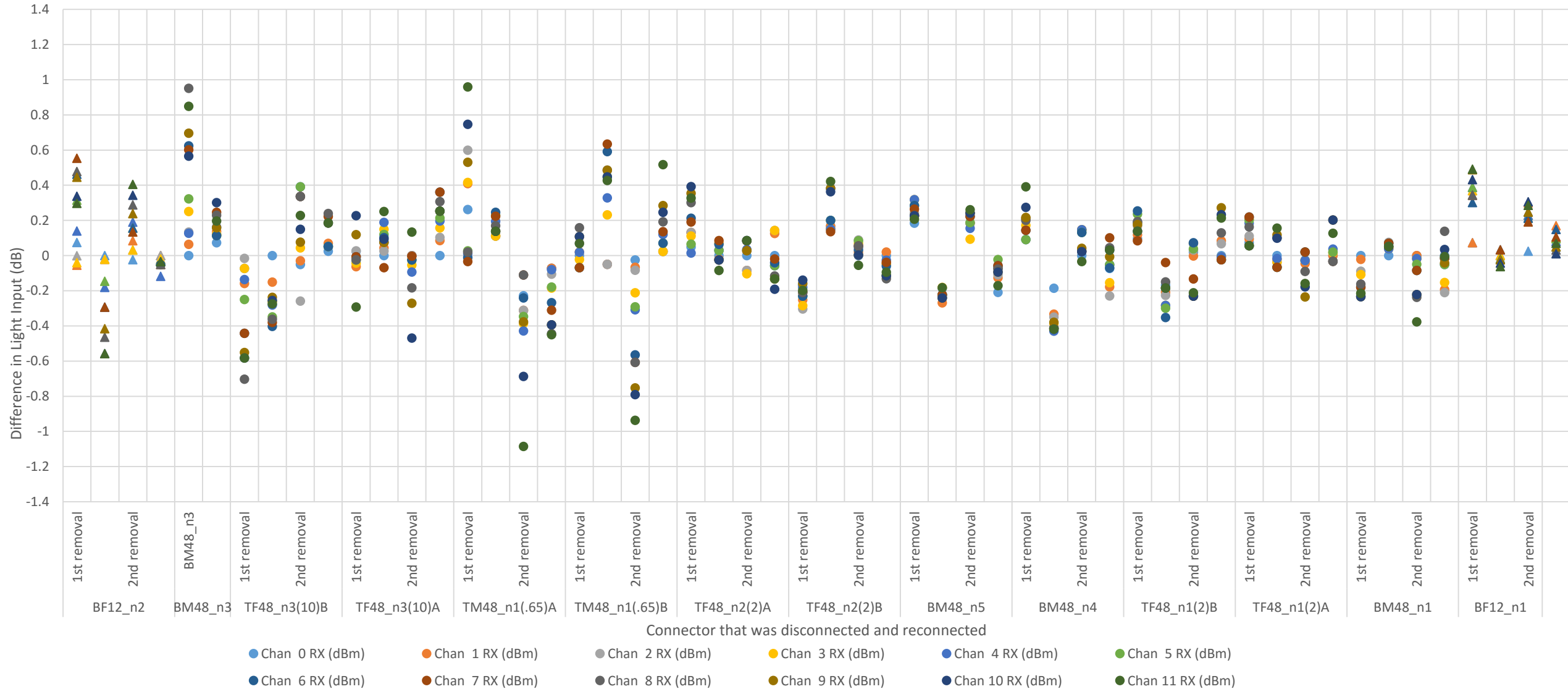
CERN Tests: Reversing Trunk Cables

- The direction of the trunk cables in the LArDPS to eFEX test setup were reversed one at a time.

- Several measurements were taken after each reversal.

- Graph on next slide shows difference in a given light input measurement and the previous light input measurement.

- There was a maximum variation of about .8 dB for reversing the direction of the trunk cables.

Difference in light input measurement after reversing direction of cable and previous light input measurements

X-axis: Trunk Cable that was Reversed

Y-axis: Difference in light input (dB)

Categories:
- A&B end of TF48_n3(10)
- A&B end of TM48_n1(.65)
- A&B end of TF48_n2(2)
- A&B end of TF48_n1(2)
- All Trunk Cables

Legend:
- Chan 0 RX (dBm)
- Chan 1 RX (dBm)
- Chan 2 RX (dBm)
- Chan 3 RX (dBm)
- Chan 4 RX (dBm)
- Chan 5 RX (dBm)
- Chan 6 RX (dBm)
- Chan 7 RX (dBm)
- Chan 8 RX (dBm)
- Chan 9 RX (dBm)
- Chan 10 RX (dBm)
- Chan 11 RX (dBm)

CERN Tests: Disconnecting and Reconnecting Multiple MTP Connectors

- The groups of connectors that were disconnected and reconnected during the reversing of the directions of the trunk cables were disconnected and reconnected without reversing any cables.

- Graph on next slide shows difference in a given light input measurement and the previous light input measurement.

- There was a maximum of about .6dB of variation before and after disconnecting and reconnecting the MTP connectors.

Difference in light input and previous light input measurement for disconnecting and reconnecting multiple connectors

Bit Error Ratio

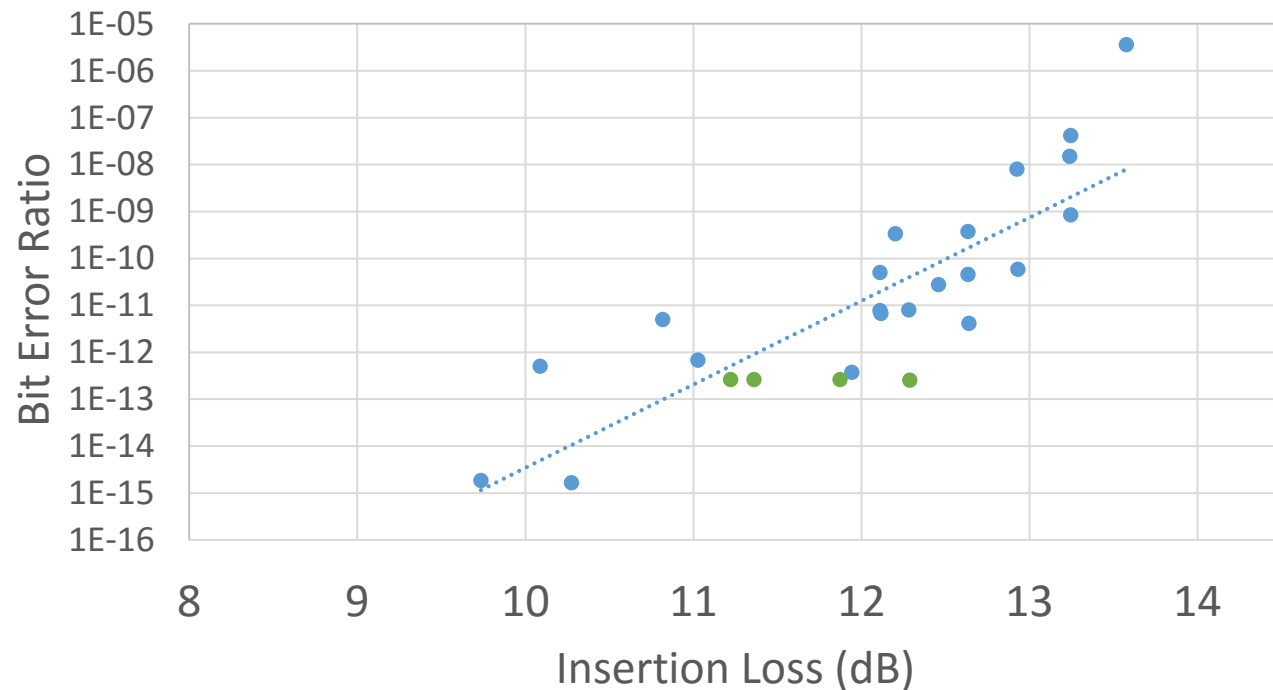# Bit Error Ratio Measurements

- Purpose:
  - To get an empirical measurement of the "light power budget"
  - To characterize the steepness of that empirical limit

- Variable attenuators were placed in the light paths of the channels.

- The attenuation level and bit error ratio was measured with the MiniPods by subtracting the light input without and with a variable attenuator in the light path.

- Graph on next slide shows the attenuation level and corresponding bit error ratio on a logarithmic scale for all the channels.

Insertion Loss and Bit Error Ratio
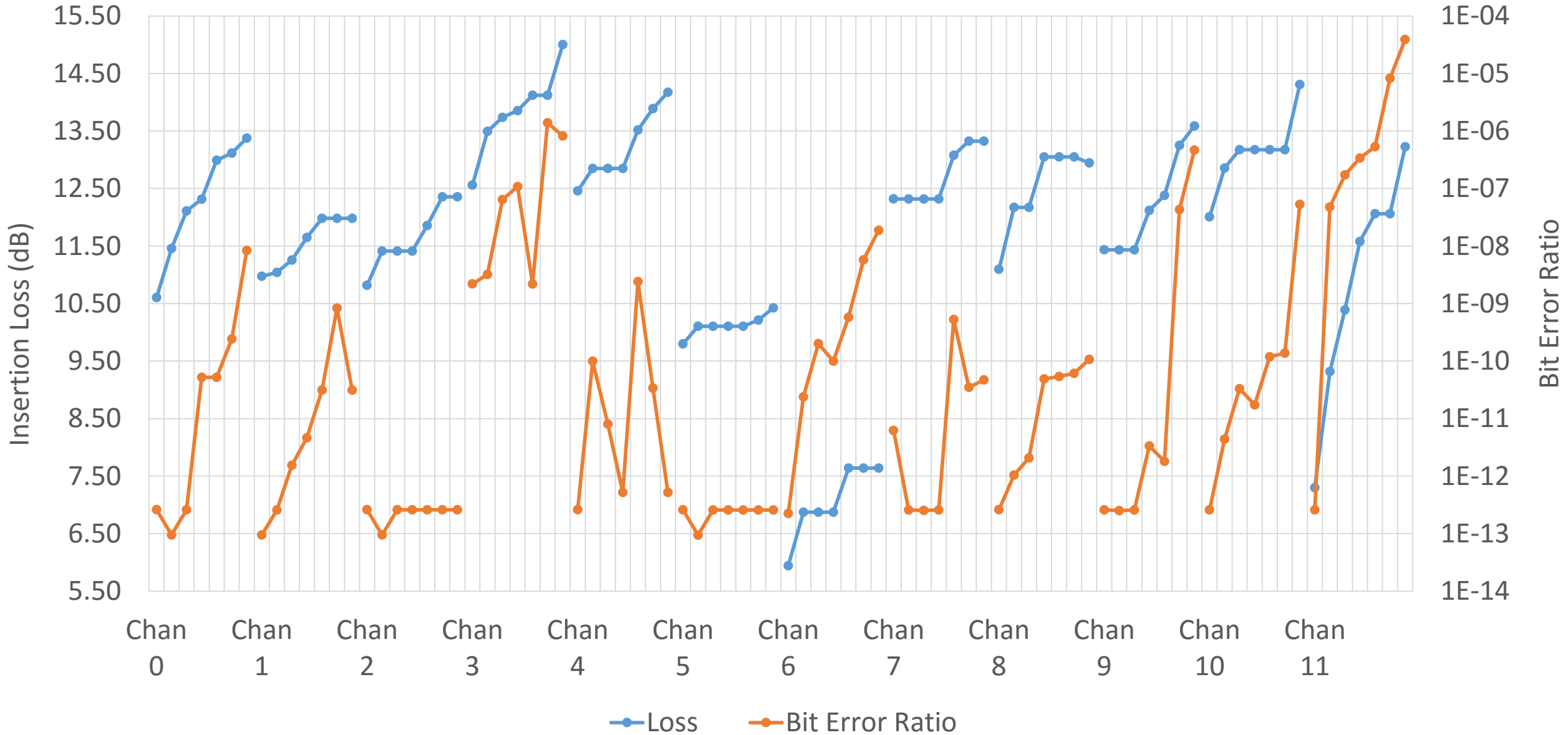
- Additional measurements were taken for channels 9 and 11 in order to show more information over a wider range of values and better resolution over the regions with high insertion loss.

- The graphs below show the insertion loss and bit error ratios for channels 9 and 11.

Xilinx IBERT bit error ratio vs insertion loss for chan 9

Xilinx IBERT bit error ratio vs insertion loss for chan 11