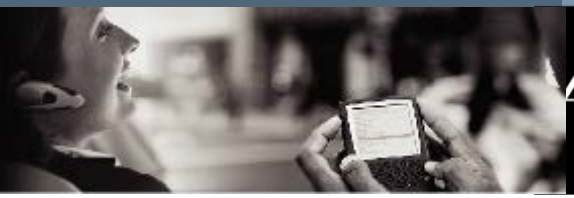
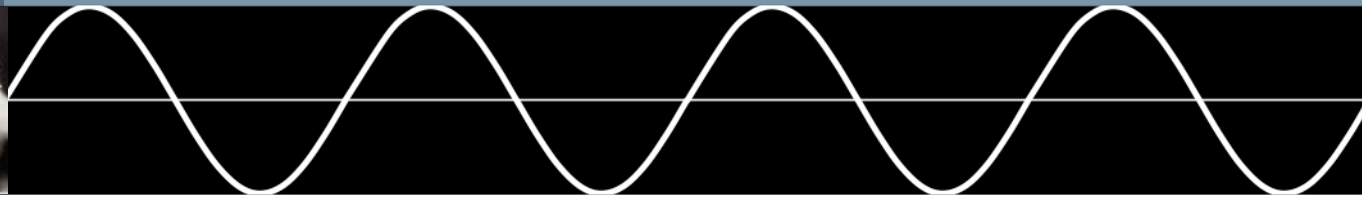
IEEE802.3bt
4 Pair PoE Current Imbalance Broken Wires & Connections

J. Heath – Linear Technology





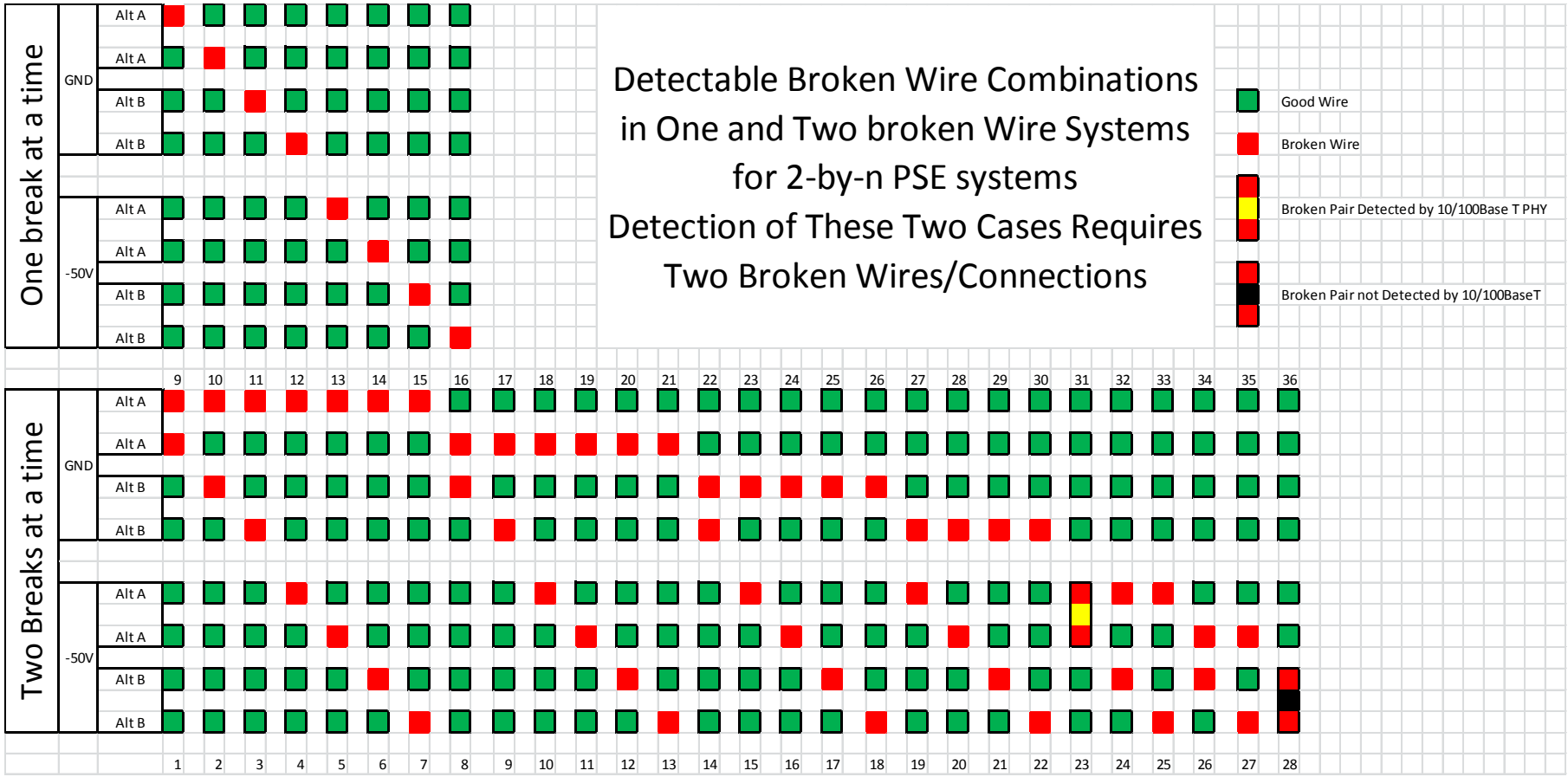
LINEAR TECHNOLOGY

Goal of this Presentation

- Quantify the number of broken / unconnected wires in a link that can be detected by
  - A 2-by-N or
  - A 1-by-N PSE

  For:
  - One or two broken wire systems
  - Exclude breaks the 100BaseT PHY detects
  - (1GBaseT detects all wire breaks)

No Single wire Breaks Detected. One Out of 36 Two Wire Breaks Detected.



Conclusions for Detection of One and Two Broken Wires for 2-by-N and 1-by-N PSE systems

- Gigabit Systems
  - All breaks detected by Data PHY
  - No value add by PSE break detection
- 10/100 BaseT
  - 10/100BaseT PHY will detect data pair break
  - No single wire break detected
  - One additional two wire break case out of 36 that can be detected by 2-by-N PSEs
- Broken wire/connection detection by a PSE is very poor
  - Gigabit – 0% break detection advantage
  - 10/100 BaseT – at best 2.8% break detection advantage