



**IEEE802.3 4P Task Force
Channel Pair To Pair Resistance
Imbalance**

**Investigation of the Transformer
Winding Resistance**

Statistical Population

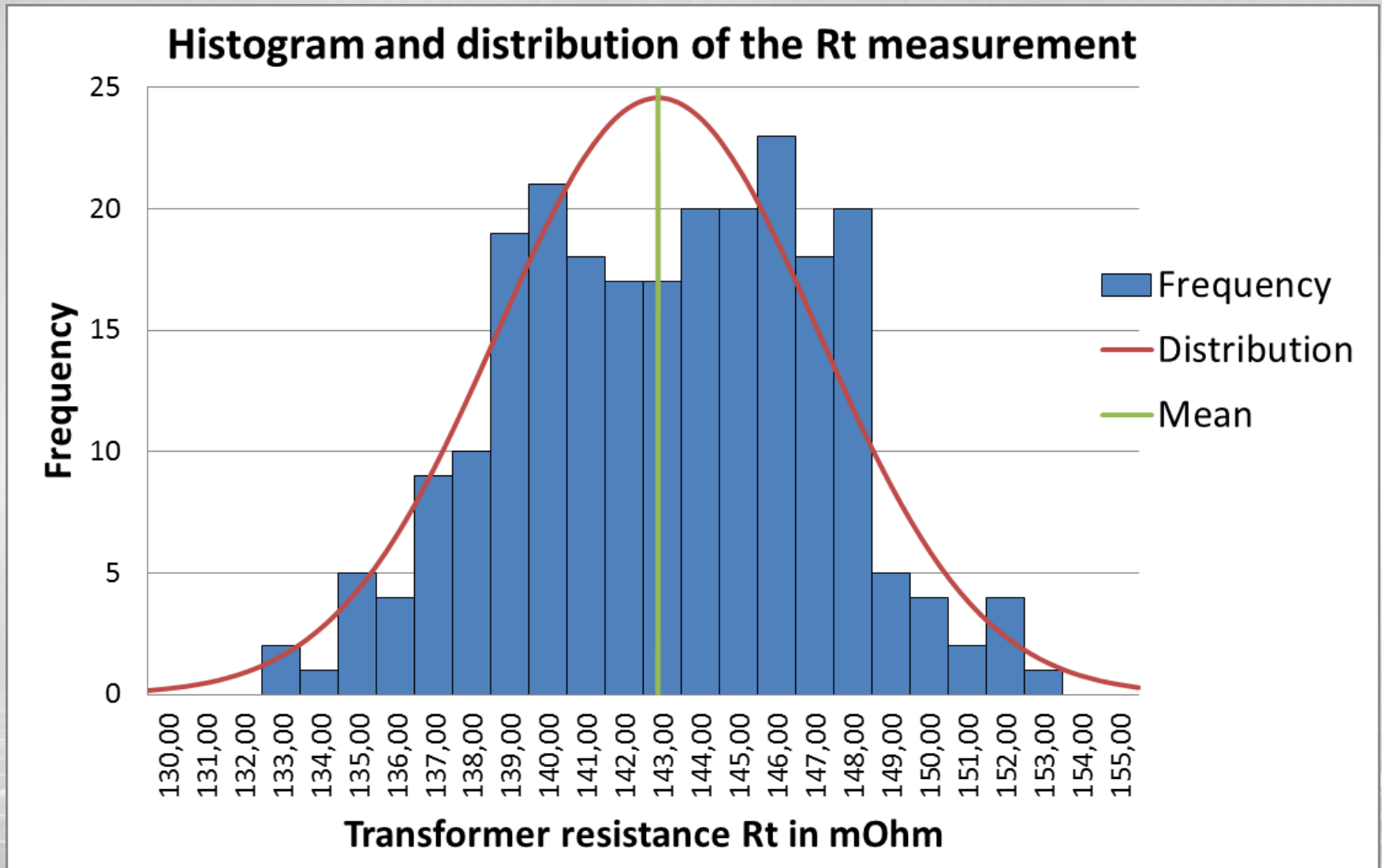
› 120 typical PoE+ Ethernet transformers with common mode choke on PHY side

- Open circuit Inductance $> 410\mu\text{H}$
 - @85°C and 18mA DC bias
- Results in 240 Rt measurements

› Measurement of Rt with four-terminal sensing

- Elimination of the impedance contribution from wiring and contact resistance.

Histogram



Summary

- › **240 Samples for Rt measurement**
- › **Rt_min = 133mOhm**
- › **Rt_max = 153mOhm**
- › **Rt_mean = 142.87mOhm**
- › **σ = 4.06mOhm**