# Testing and measuring procedures of copper data cables

This overview indicates to what degree and how consequent all Datwyler copper data cables are tested for their quality.

| Testing of all manufactured cables* | Testing content |
|---|---|
| DC resistance of copper wire | Wire resistance, loop resistance, resistance difference |
| Voltage Indication | Wire to Wire and Wire to Screen |
| Capacitance | Mutual capacitances, capacitive couplings, capacitive earth unbalance |

* Each length is tested.

| Point by point testing (per production unit) | Testing content |
|---|---|
| Transmission characteristics | Impedance, Return Loss, Attenuation, Near End Cross Talk (NEXT), ACR-F |
| Material features | Break stretching of the copper wire, tensile strength of the insulation, stretching of the insulation, tensile strength of the sheath, stretching of the sheath |

These values/features are tested with samples.

| Type specific tests and measuring | Testing content |
|---|---|
| Transmission characteristics | All electrical parameters demanded in the appropriate standards, Permanent Link and Channel measurements |
| Mechanical and physical product features | Shrinking of the insulation, wrapping of the insulation after alteration, cold restiance of the insulation, tensile strength and break stretching of the cable jacket after alteration, pressure sensitivity at high temperatures, cold bending test of the cable, heat resistance, atmospheric humidity test for cables, temperature test and UV test |
| Tests to avoid damage during installation | Cable crushing, wire crushing, shock resistance of the cable, repeated cable bending and tensile strength test |
| Environmental qualities | Acid emission, smoke emission, burning test for individual cable (fire behavior) and burning test for bundle cable (vertical burn test) |
| Resistance for the insulation | Resistance between each wire and between wire/cable screen |
| Screen performance | Transmission impedance of the cable , Coupling Attenuation |

Type specific tests are carried out during the development stage and in case of changing the cable construction

| Quality Control | Content |
|---|---|
| Imprint | It is ensured by an identification of each cable (production batch number) that the measured values can be recovered at any time. e.g. CU 7002 4P FRNC/LS0H 887149 |