Definition of measurements in ISO/IEC

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- After the discussion on measurements below 1 MHz in Orlando, in this presentation there will be an overview of measurements defined internationally in ISO/IEC.

Cooper link measurements

- Measurement of links are specified in ISO/IEC 11801-1 in Annex A.
- Contractual issues and error treatment in ISO/IEC 14763-2
- Balunless measurements setups are specified in IEC61156-1-2
- Definition of baluns and field testers are defined in IEC 61935-1 (including error management)
- E2E (industrial end to end) links are defined in ISO/IEC 11801-9902 and measurements and test head definition in ISO/IEC 14763-4

Measurement Plateaus in Limits of 11801-1

- As the limit lines may yield values outside measurement possibilities especial in non laboratory testing plateaus are frequently used
- Definition in channel clause:
  - **Many specifications in this clause have a plateau in the specified requirement. These plateaus do not accurately depict the system performance. They have been added for measurement purposes.**

Other definition in limits of 11801-1

- If some limits can only be reliable mesured in laboraty there is a definition as **met by design**:
  - “met by design” refers to a requirement which may be met by the selection of appropriate materials and installation techniques.
    - TCL, ELTCTL, Coupling attenuation
- **Get out clauses** : if ……

  then usually for information only
  - RL and NEXT

<2 MHz

- Except for old telephony cablings measurements below 1 MHz are not demanded in 11801-1 because they would be included in plateaus.
  - Below 2 MHz cable impedance is not real anymore and deviate from 100 Ohm
  - Links are measured with 100 Ohm load
  - Transmitters are defined with a 100 Ohm load
- To compare measurements of cables with measurement of transmitters gets complicated.

Different testings: 11801-1 Annex A

This annex contains requirements and recommendations for testing of channels, and links in order to determine their conformance to this International Standard. It is not intended to represent or replace requirements for contractual installation acceptance testing which are defined within an installation specification. Guidance for such testing is provided in ISO/IEC
14763-2.

Performance testing

Performance testing can be undertaken either
a) in a laboratory, where channels, or links contain specific cabling components in a specific implementation, or
b) in the field, after installation.
There are two kinds of conformance testing, both of which may be performed by independent or third party organisations in order to give greater levels of confidence or guarantees of compliance:
1) reference conformance testing (also known as type testing);
This testing is performed on a sample of installed cabling in a laboratory where an assessment against the conformance criteria of the 11801 series documents is required.
The assessment documentation will include details of the number of channels or links tested, test evaluation criteria, supplier's declarations and certification, laboratory accreditation and calibration certification, etc.

Performance testing

This testing may also be used for
· the comparison of measurements performed with laboratory and field test instruments,
· assessing cabling models in a laboratory environment,
· assessing parameters that cannot be tested in an installation.
2) installation conformance testing;
This testing is performed on installed cabling where an assessment against the conformance criteria of the 11801 series documents is required. installation conformance testing may be performed to:
· give a greater degree of confidence in the accuracy of installation acceptance test results;
· resolve contractual issues;
· determine performance under the circumstances described i n Clause …

Proposal ?

- As seen there are laboratory performance testing to asses IEEE 802.3 links
- For other measurements there are:
  - For information only
  - Met by design
  - Plateaus

- And 11801-1 will apply them accordingly when defining their standard.

Thank you