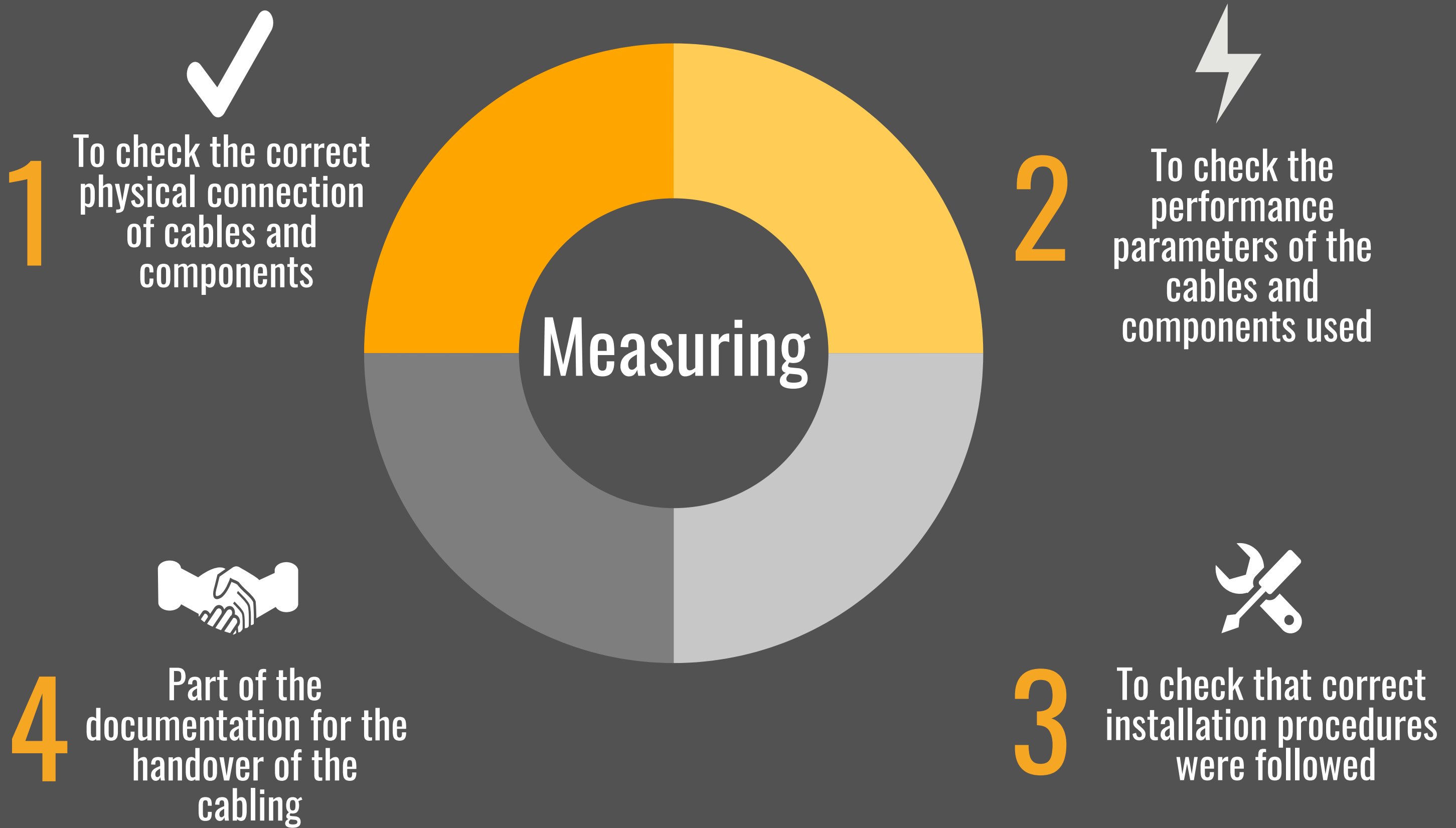


SOLARIXPEDIA

How-to: Testing Structured Cabling

WHY TO TEST STRUCTURED CABLING



TYPES OF TESTING DEVICES

Certification

- The most advanced testing method
- Required for Solarix system warranty
- Tests are performed according to the current cabling standards
- Accuracy level IIIe, IV, V and VI
- Devices: Fluke DSX 5000 and DSX 8000

Verification

- Simple measurement
- Checking the correct wiring
- Device: Fluke IntelliTone

Verification

Qualification

Certification

Qualification

- Cabling qualification for individual Ethernet protocols
- E.g. verification of compatibility with 1000BASE-T, 2.5/5GBASE-T etc.
- Device: Fluke LinkIQ

MOST IMPORTANT PERFORMANCE PARAMETERS

These parameters are influenced by **quality of the installation:**

(PS)NEXT

(PS)ACR-N

WIRE MAP

RETURN LOSS

These parameters are influenced by **quality of the cabling:**

INSERTION LOSS

(PS)ACR-F

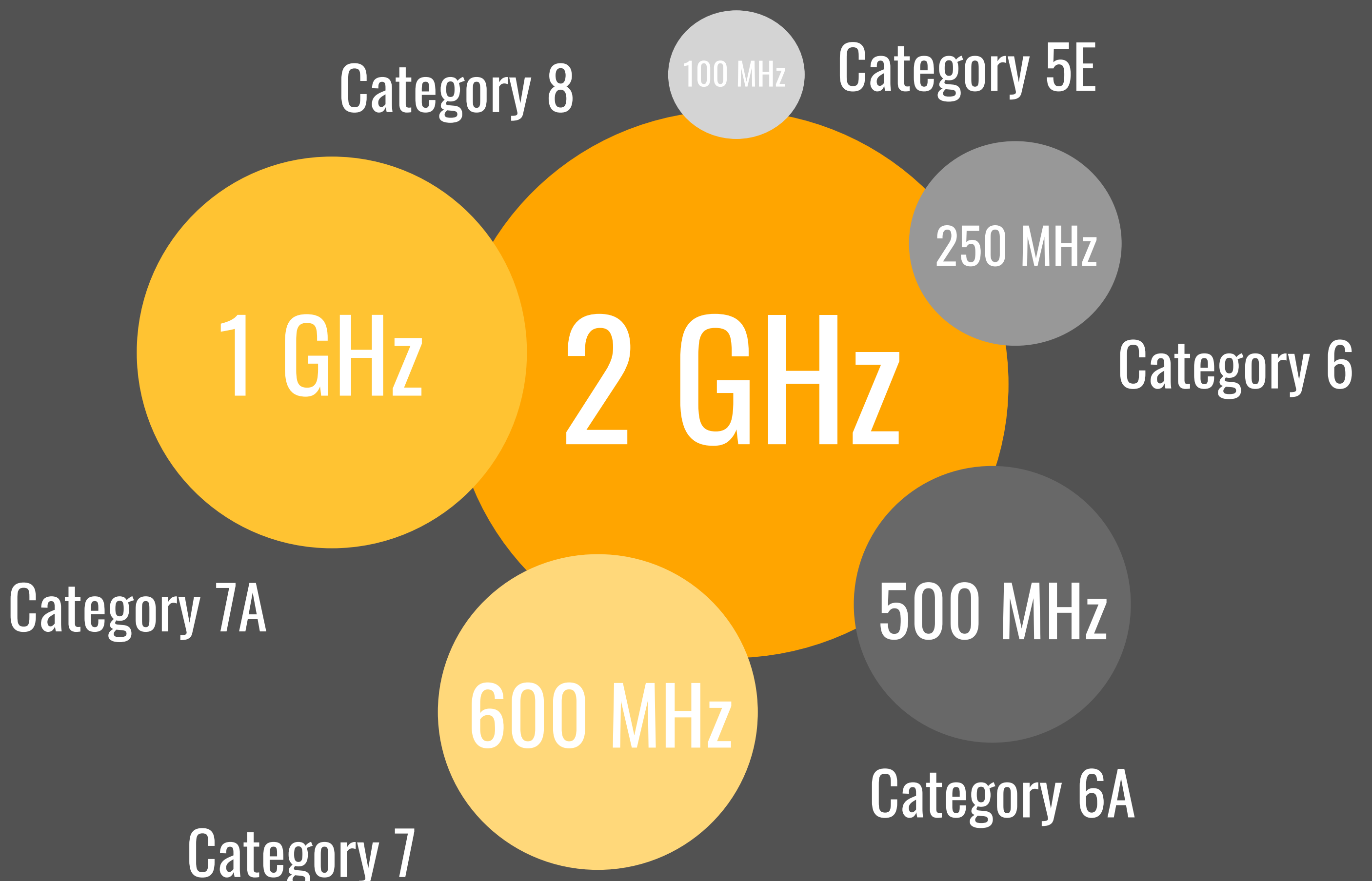
DELAY SKEW

RETURN LOSS

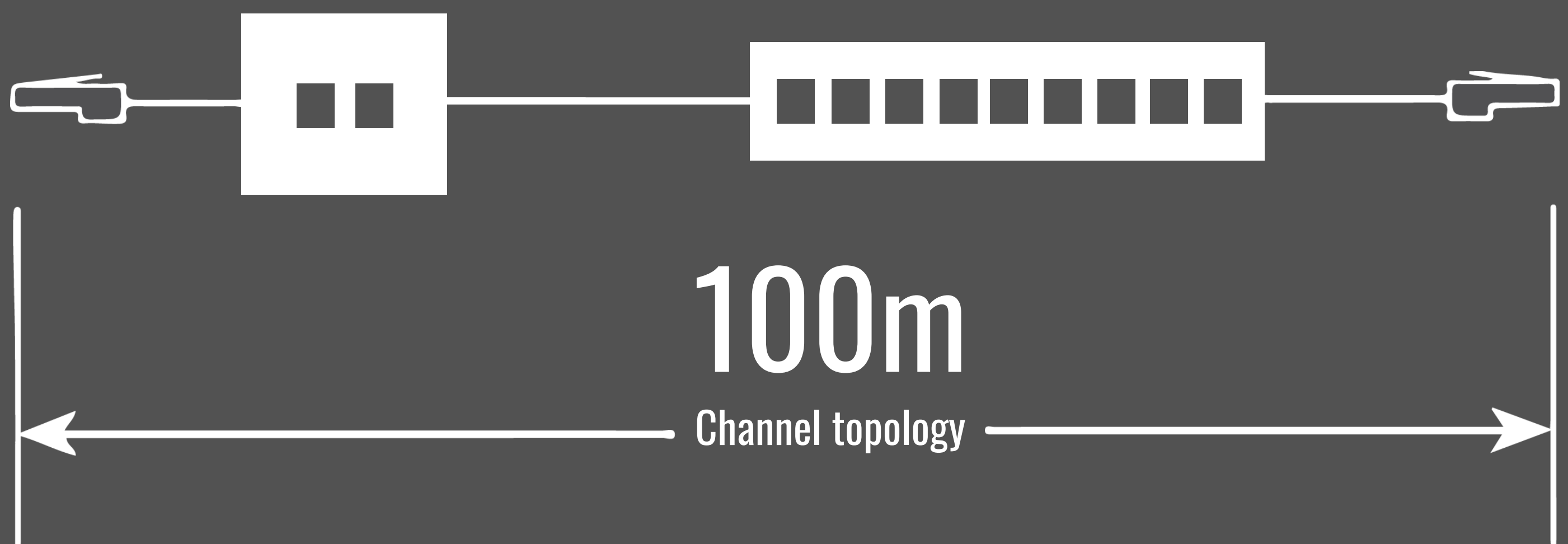
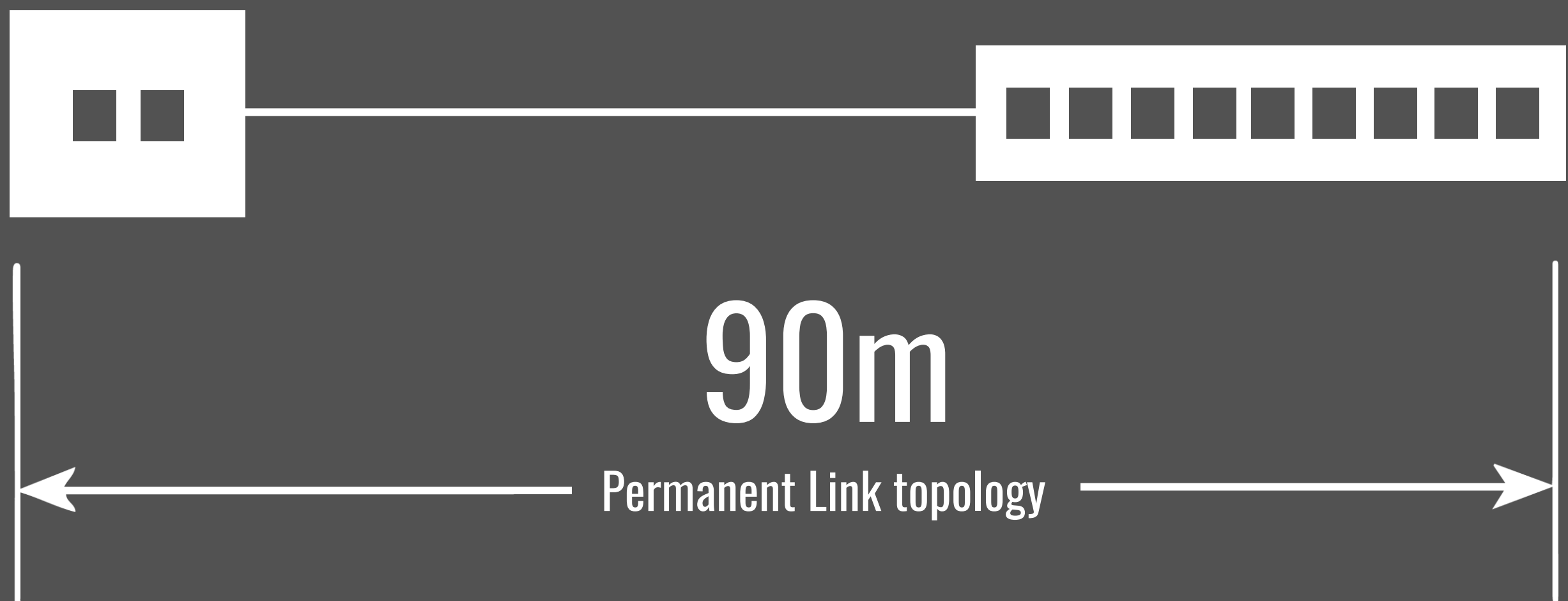


Want to know what the individual parameters **mean**? Check out www.solarix.cz

TESTING BANDWIDTH



PERMANENT LINK VS. CHANNEL



STRUCTURED CABLING STANDARDS

ISO/IEC



Valid worldwide

ANSI/TIA



Valid in USA

CENELEC



Valid in Europe

CORRECT SETTING OF THE TESTING DEVICE

TESTING OF CAT5E CABLING

- ✓ GENELEC EN 50173 PL Class D
- ✓ ISO 11801 PL Class D
- ✓ TIA CAT5E Permanent Link*

TESTING OF CAT6A CABLING

- ✓ GENELEC EN 50173 PL2** Class Ea
- ✓ ISO 11801 PL2** Class Ea
- ✗ TIA CAT6A Permanent Link *** (DO NOT USE)

*) Only minor differences but does not correspond to the correct region

**) PL2 TOPOLOGY

- This is the most frequently used topology for testing CAT6A cabling
- PL2 = patch panel - data outlet (i.e. without consolidation point)

***) TIA CAT6A Permanent Link

- Unlike CAT5E or CAT6, CAT6A is defined differently (more mindly) in TIA
- The differences are mainly in the NEXT and PSNEXT parameters, we do not recommend testing CAT6A cabling according to TIA
- Testing according to the TIA standard will not be accepted for the Solarix system warranty
- To have CAT6A cabling tested correctly and in accordance with the terms of the Solarix system warranty, please test your cabling according to the GENELEC EN or ISO/IEC standards

TESTING OF CAT6 CABLING

- ✓ GENELEC EN 50173 PL Class E
- ✓ ISO 11801 PL Class E
- ✓ TIA CAT6 Permanent Link*

Example of the correct setup of a testing device for Category 6A cabling

Module: DSX-5000	>
Cable Type: SXKD-6A-STP-LSOH	>
NVP: 75.0%	>
Shield Test	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off
Test Limit: ISO11801 PL2 Class Ea	>
Store Plot Data	<input checked="" type="checkbox"/> On <input type="checkbox"/> Off
HDTDR/HDTDX: Fail/Pass* only	>
Outlet Configuration: T568B	>
AC Wire Map	<input type="checkbox"/> On <input checked="" type="checkbox"/> Off

TESTING TIPS

90m

The maximum length of the tested segment should never exceed 90m (Permanent Link topology), the shortest pair is always taken into account

NVP

To correctly test the link length, you must first set the NVP parameter for the given cable into the testing device

20°C

The reference ambient temperature for testing is always 20°C. At higher average temperatures, it is necessary to perform the so-called de-rating of the cabling (see EN 50173-2, table 3)

EN

CENELEC EN 50173 is the standard according to which testing in the EU should always be carried out in the Permanent Link topology

100N

The testing of the ACR-F parameter will be negatively affected if the cable is installed with a tensile stress exceeding 100N (10 KG)

PS-

Parameters with the prefix PS- are important for protocols communicating over all 4 pairs (e.g. 1000BASE-T)