

PROTOCOL

to exercise

Ethernet

HTL
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EL

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Ethernet

(Layer 2)

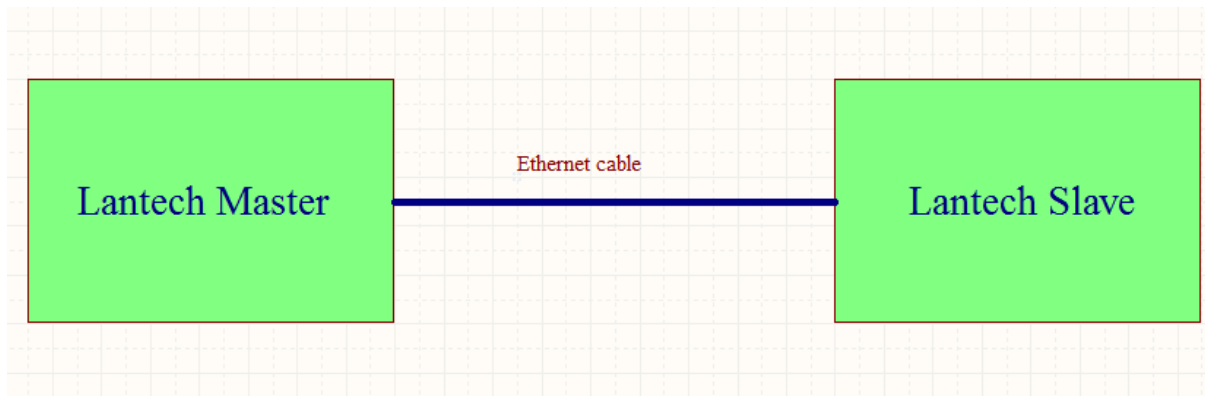
Used Devices

Nr.	Device	Manufacturer	Type	Place Nr.
1.	Network Measurement Tool	Lantek	Lantek 64	-

Tasks:

The task of this workshop lab was to measure several different values attributable to the ethernet network installed in P429. Given was an ethernet cable with a length of 9m. The measurements had to be done with a measurement device called LANTEK 6A by the company Ideal Industries Inc. The ethernet cable had to be connected to the measurement devices as shown in the figure below.

Fig.1: Measurement setup



By

doing so, it was possible to generate the following values:

Length:

The screenshot shows the interface of the LANTEK 6A device. At the top, it displays 'Länge' (Length) and a green checkmark. Below this, it shows 'Cat 5E STP Perm' and 'JOB1'. A table with four columns: 'Paar' (Pair), 'NUP', 'n', and 'Ergebnis' (Result). The table contains four rows of data. At the bottom, it shows 'Grenze: 0.0 n - 90.0 n' and two buttons: 'Dauer' and 'Drucke'.

Paar	NUP	n	Ergebnis
7,8	0.72	8.9	✓
3,6	0.72	8.8	✓
5,4	0.72	8.9	✓
1,2	0.72	9.2	✓

Fig.2: Length of the cable

The pair of conductors varies because the length is measured from the running time and this depends on the capacity.

Running time

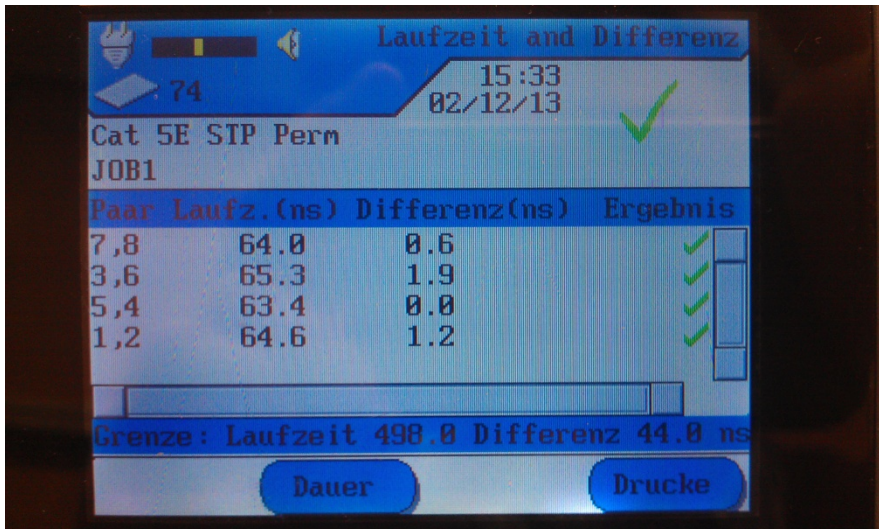


Fig.3: Running time and difference

You can see that there are different running times. They depend on the capacity produced by the twisted wire pairs.

Wiring



Fig.4: Wiring

The figure shows that this cable is not a cross over cable and both plugs have been mounted correctly.

Capacity

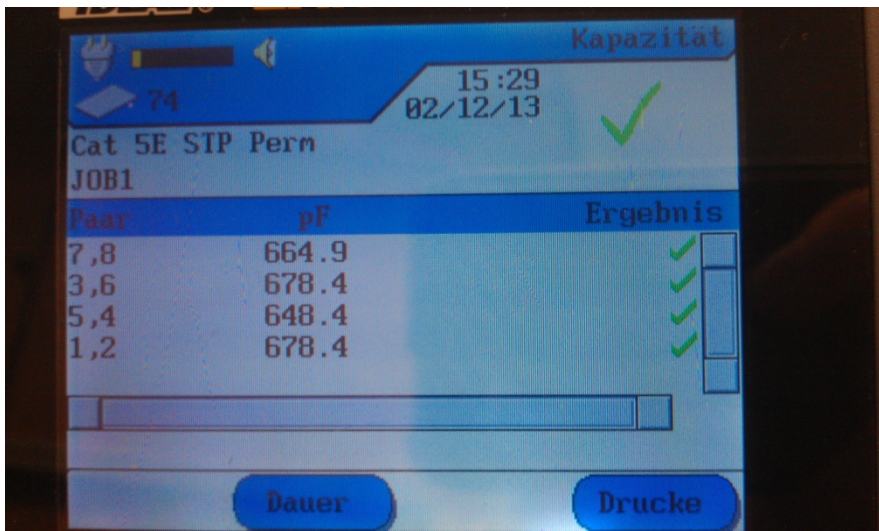


Fig.5: Capacity of the wire pairs

The capacity depends on how much the cable is twisted.

Resistance

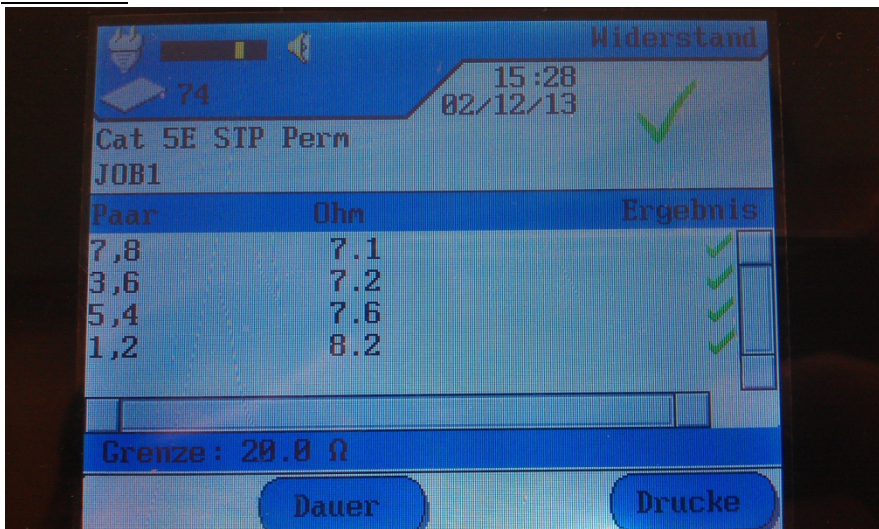


Fig.6: Resistance of the wire pairs

Attenuation



Fig.7: Damping

Impedance

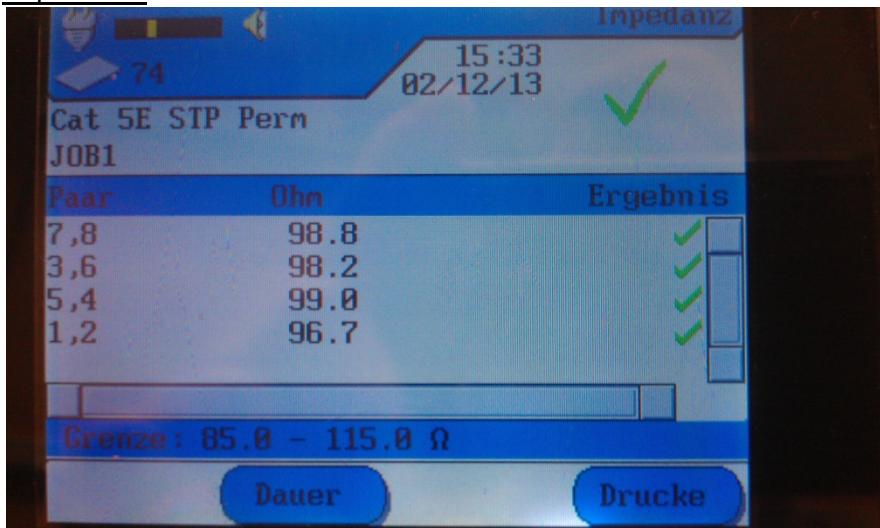


Fig.8: Impedance of the wire pairs