



Proximus access to the Raw Copper Services

Technical Specifications

Annex B 1.4 & B 2.4

Service Description 2040 & 3040

Appendix A

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1. Technical Specification for the delivery of a shielded twisted 24 pairs cable

1.1 Introduction

1. This document specifies the properties of the cable used for connecting the Main Distribution Frame to the Colocation Area in the local exchange. It is an extract of the Proximus technical specification used when purchasing this type of cable. Some characteristics of the purchased cable may be other than those required in this specification, but the electrical requirements are always maintained.

1.2 Description of the cable

2. The cable is respectively made of: 24 symmetrical pairs, each of them having the following characteristics:
3. Conductor: a mono-conductor wire of 0.5 mm (± 0.01 mm) diameter made of annealed copper, single strand, circular in section, and tinned.

1	white	blue
2	white	orange
3	white	green
4	white	brown
5	white	grey
6	red	blue
7	red	orange
8	red	green
9	red	brown
10	red	grey
11	black	blue
12	black	orange
13	black	green
14	black	brown
15	black	grey
16	yellow	blue
17	yellow	orange
18	yellow	green
19	yellow	brown
20	yellow	grey
21	white-blue	blue
22	white-blue	orange

23	white-blue	green
24	white-blue	brown

4. Insulation: a full polyvinyl chloride insulating coat of 0.20 mm thickness (0.17 mm minimum) and with a nominal external diameter of 0.90 [+0.05 mm, -0.03 mm]. The colours shall correspond with IEC 189-2 App. A and IEC 304.
5. The cabling element is a pair of two insulated conductors designated wire A and wire B. Twisting pitch of the pair: 50mm maximum.
6. The 24 cabling elements are stranded in concentric layers. A binding tape is placed between successive layers. The sequence of elements is from the centre to the outside layer; the counting direction is clockwise and the same in each layer.
7. The core of the cable is wrapped with a protective layer of non-hygroscopic material, wound helical or longitudinal lapping and consists of 1 or 2 tapes with overlap.
8. A tinned copper wire with the same dimensions as the conductor wires is included in the cable in continuous contact with the surface of the screening foil.
9. A screening foil consists of a sandwich foil aluminium-insulated tape-aluminium with an aluminium thickness of 25 microns on both sides. The tape is applied longitudinally round the wrapped core with an overlap of 6 mm minimum.
10. A braid shield of tinned copper wires, forming a screen with a minimum coverage ratio of 50 %, is placed around the preceding elements. The diameter of the single wires is between 0.10 mm and 0.20 mm.
11. A thread of non-hygroscopic material denoting company of manufacture is laid underneath the sheath.
12. A monochrome grey (RAL 7032, colored in the block) sheath in LSZH material is enveloping the previous assembly. Sheath thickness: 0.80 mm nominal, 0.60 mm minimum. The diameter of the finished cable does not exceed 11.5 mm.
13. On the surface of the coating, the following indications are printed with permanent black (or dark blue) ink: SP XXX (to be later defined) - NAME OF THE MANUFACTURER (MANUFACTURING YEAR).
14. Under or after this metrical indication, an indexed number allows to measure easily the length of a cable part by making the difference of two indexes.
0 1 2 3 4 5 6 ...

1.3 Electrical Features

1.3.1 Electrical requirements of the conductor

15. The loop resistance is maximum 196.5 ohm/km at 20°C and the conductivity is minimum 57 m/ohm.mm² at 20°C.

1.3.2 Insulating resistance

16. The insulating resistance between the two wires of the pair or between each wire and the screen is not inferior to 500 Megohm x kilometer after a minute of electrification.

1.3.3 Dielectric strength

17. The dielectric strength is minimum 1500 Vdc when measured during 1 minute.

1.3.4 Cable impedance

18. The cable impedance is in the range 80-110 ohms at 1 MHz.

1.3.5 Attenuation

19. At 1 Mhz, the attenuation may not exceed 32 dB/km.

1.3.6 Crosstalk between 2 pairs

20. The near end and far end crosstalk values (between two symmetrical pairs under the screen placed side by side on a length of 250 meters) are greater than 55 dB at 1 MHz and 40 dB at 10 MHz

1.3.7 Mutual capacitance

21. The mutual capacitance is maximum 100 nF/km measured between 500 and 2000 Hz.

1.3.8 Capacitance unbalance

22. Between any pair and the earth the capacitance unbalance does not exceed 750 pF/500m with the exception of 1 value of the values up to 1500 pF/500m at 1 kHz.

2. Technical Specification for the Reel

23. Proximus accepts reels with a maximum diameter of 1 meter. This as the installations teams handle the reels manually to transport it up to the relevant floor in the Local Exchange building. In case more reels are delivered on a site, they need to be placed one next to another (no piling).