

# ADSL IMPAIRMENTS

## **Interruptions**

They can be caused by bad joints, mechanical vibrations and intermittent line breaks.

## **Split Pairs**

Split pairs result in noise, crosstalk, radiation and high insertion loss in xDSL applications and generally need to be located and rectified before a line can be used.

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## **Gauge Changes**

Wherever there is a change of gauge there is a change of characteristic impedance, and this as we know will result in mismatching and reflections.

Gauge changes result in high return loss and insertion loss. They may cause degradation of xDSL services.

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## Bridge Taps

In course of repair and maintenance activity a parts of the line plant are often left connected. The disused length of line result in high return loss. They also act as very efficient antennae, picking up noise from the environment and injecting it into the line. They also act as powerful transmitting antennae.

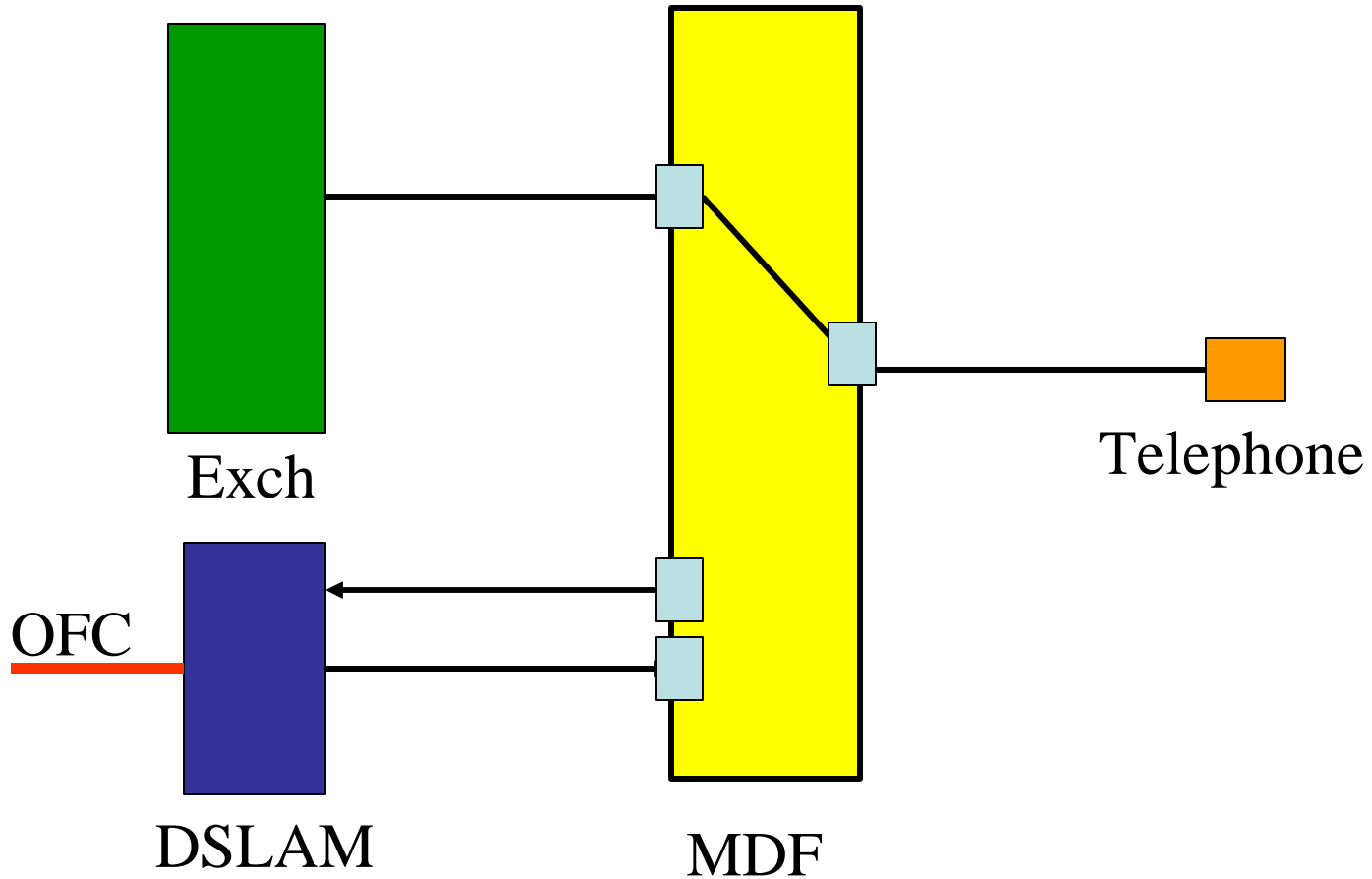
Bridged taps result in noise, return loss and radiation which can disqualify the bridged pair from use for xDSL.

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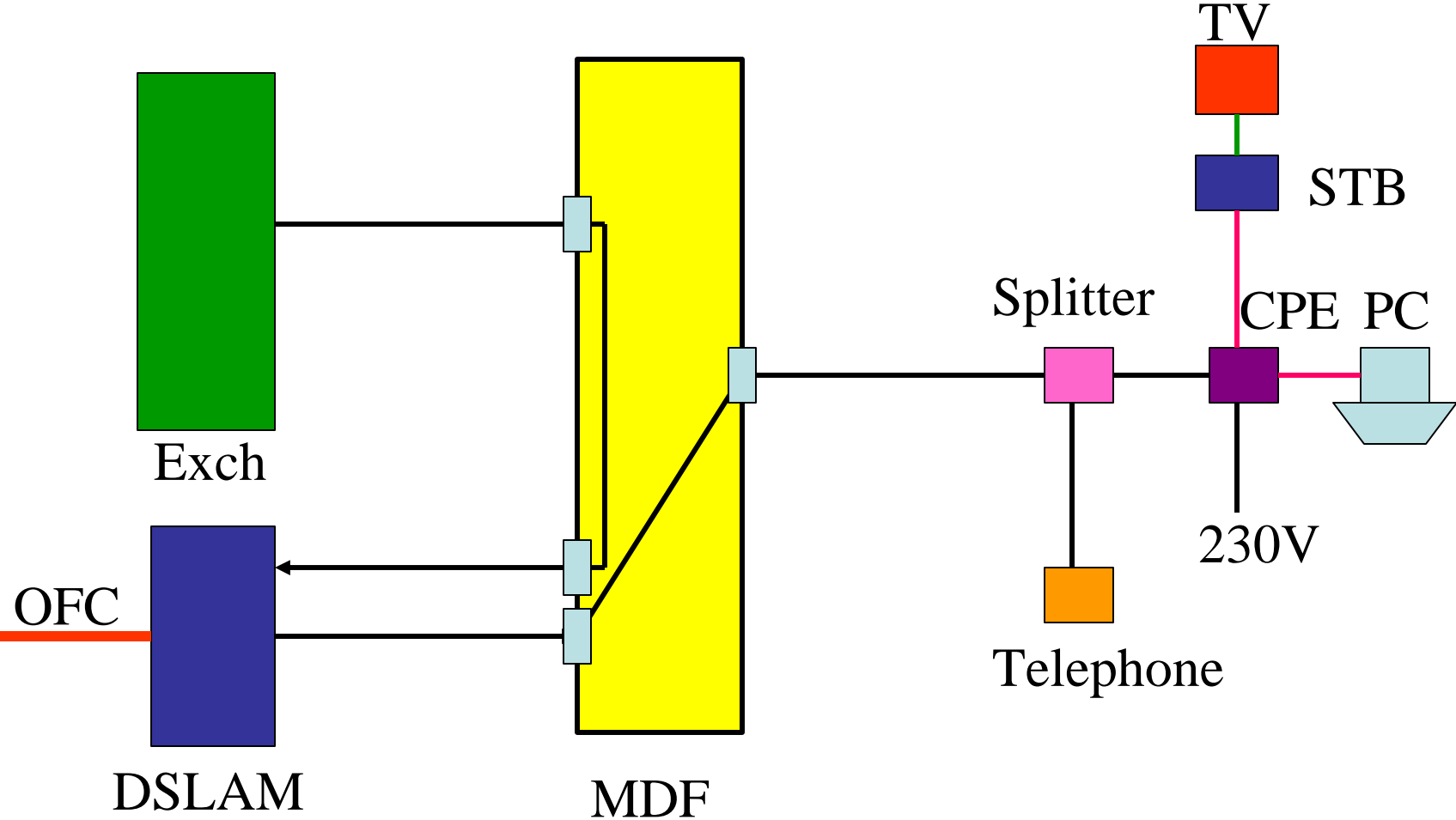
## **Bad twisting**

xDSL demands neat and consistent termination right up to the cable joints. These can be problem area for the more demanding xDSL.

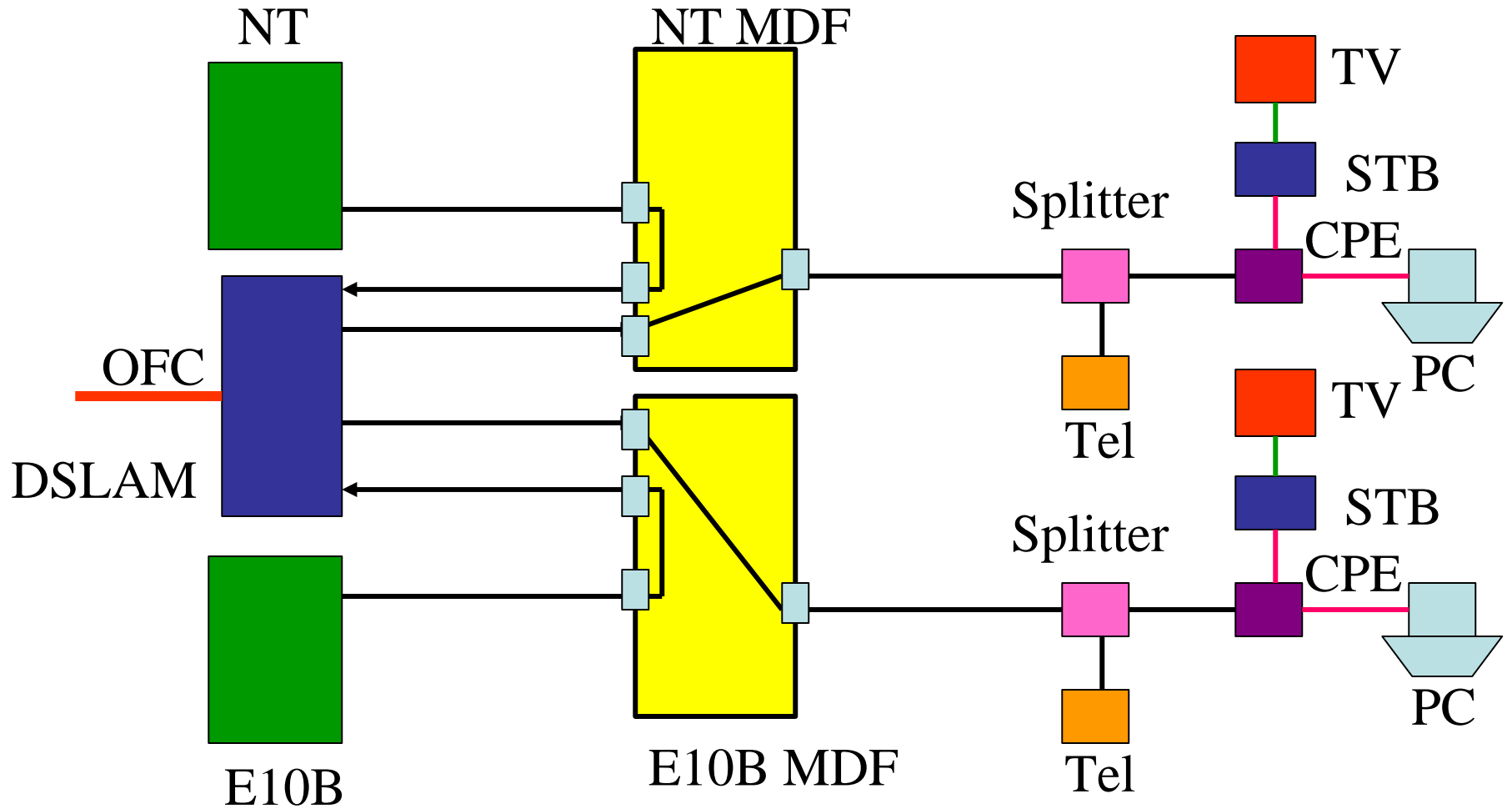
# MDF Wiring



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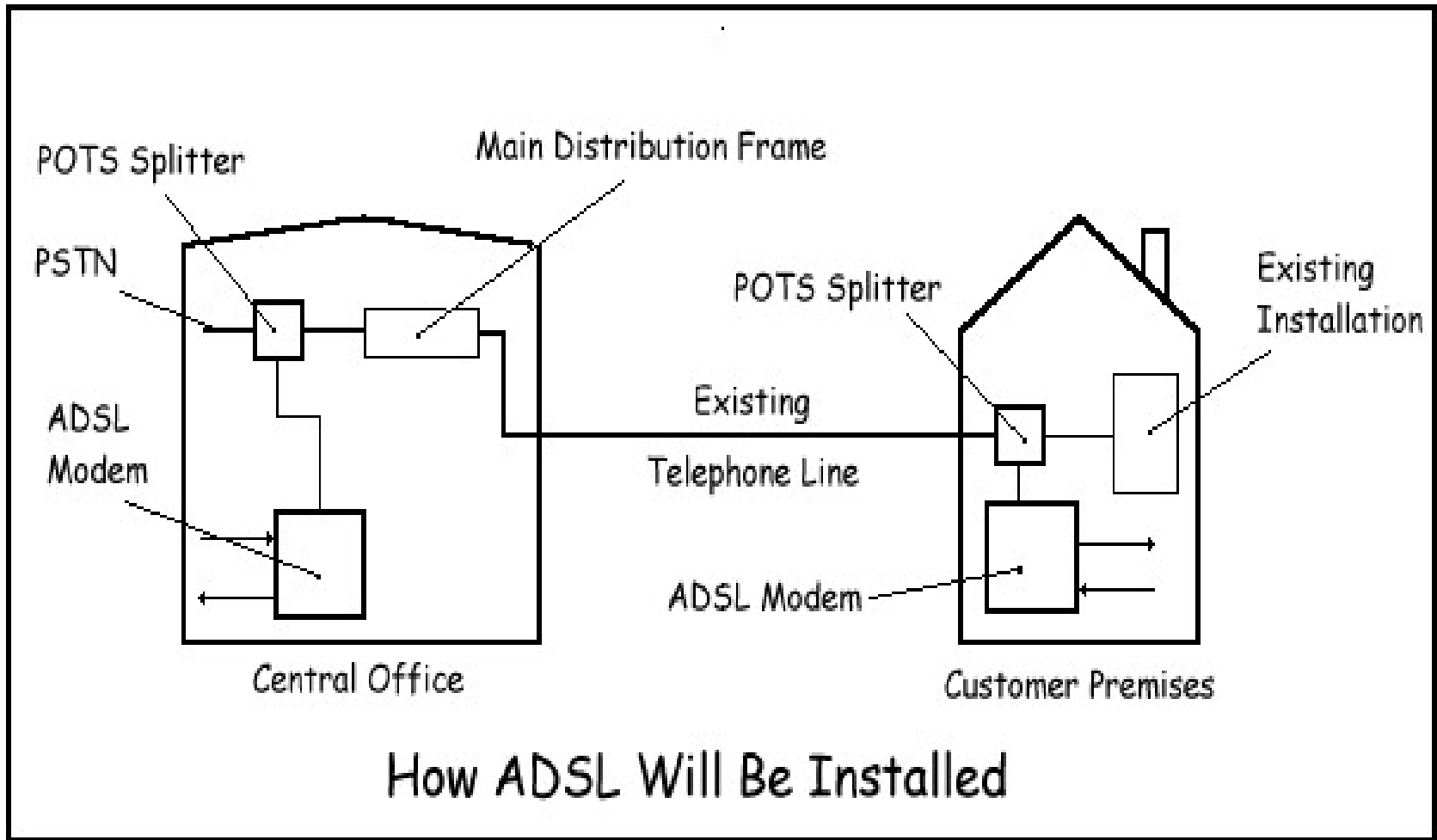
# Wiring with DLC

- *Each DLC RT may be treated alike an Exchange*
- *Wiring either at RT MDF or at a Pillar/ Cabinet*
- *Wiring at a Pillar/ Cabinet is adviseable*
- *Broadband DLC (BDLC) are also getting introduced in BSNL Network in which sparate PSTN Ports & Broadband Ports are available.*

*Ex : 512 BDLC RT will have 384 PSTN Ports & 128 Broadband Ports*



# ADSL MODEM Installation



# *External Plant*

## **Ground Realities**

- *Combination of all types of Copper Gauges*
- *Many copper joints are exposed*
- *Improper joints viz Twisted type*
- *Combination of Paper Core and PIJF*
- *Combination of Armoured and Unarmoured cables*
- *Crone and Wrapping Type terminations*
- *Improper copper punching at DPs / Tag Blocks*
- *LJU and Rosettes in Customer premises*

# Broadband Enemies

## Ground Realities

- *Copper cables of multiple gauges*
- *Twisted copper joints*
- *Parallel instruments in Customer Premises*
- *Exposed copper joints*
- *Difference in cable and dropwire gauges*
- *Joints in dropwire*

# Identify Enemies

Long drop wire.

Parallel Instruments.

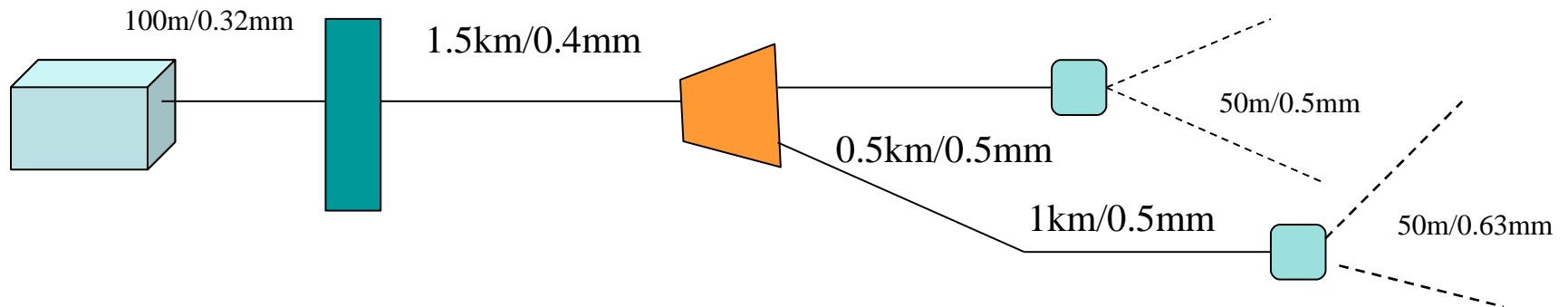
Termination by twisting at DP and joints.

T-joint at MDF, Cabinet and Pillars.

Low gauge of copper wire especially the drop wires.

Tie-Cable at MDF

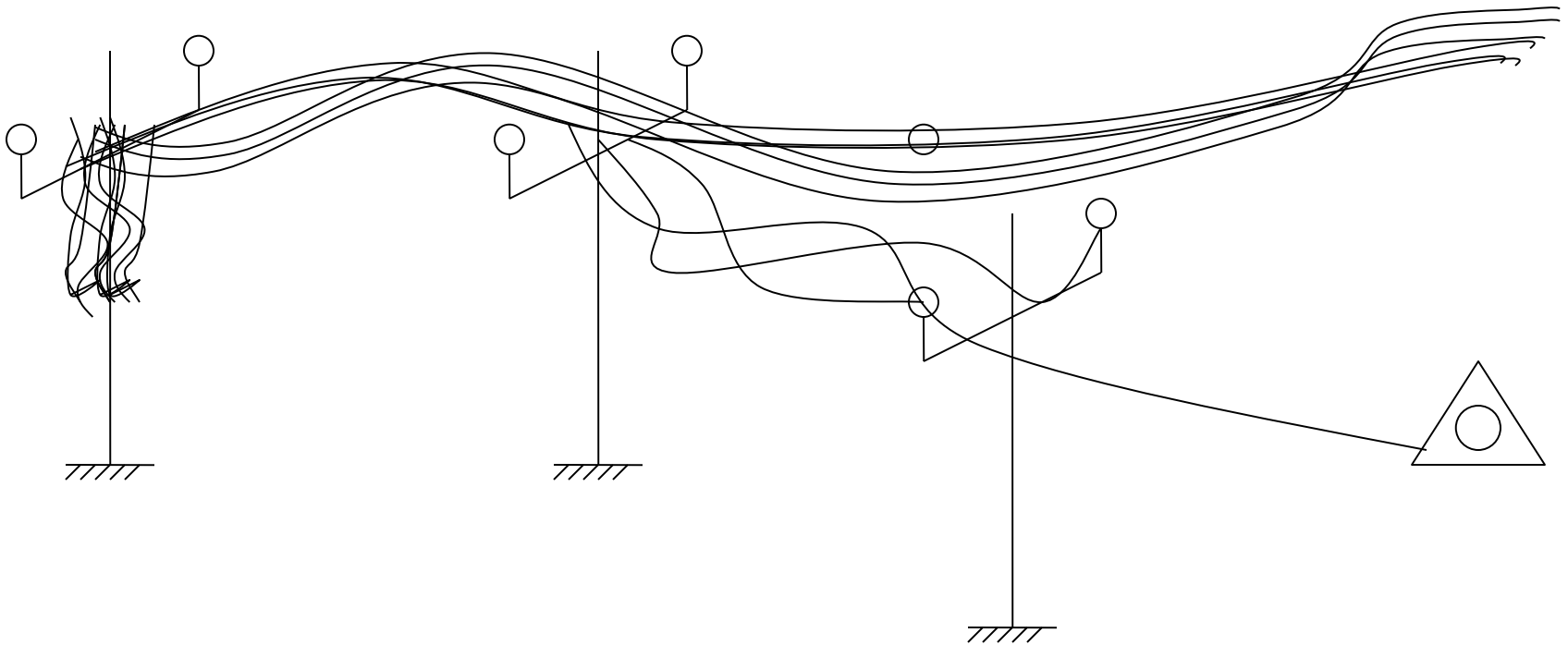
Old TC80B tag block



0.4mm in **38%**, 0.5mm in 48%, 0.63mm in 14% of the network

# Major Worry : DROPWIRE

It is normally dropped, not installed



# *Ideal External Network*

- *Uniform copper cable gauge*
- *PIJF cable*
- *Properly earthed cable sheaths*
- *Internal DPs*
- *Block Wiring*
- *Line jack Units*
- *No Parallel Instruments in Customer Premises*

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## Topology of the Public Access Network Introduction

