

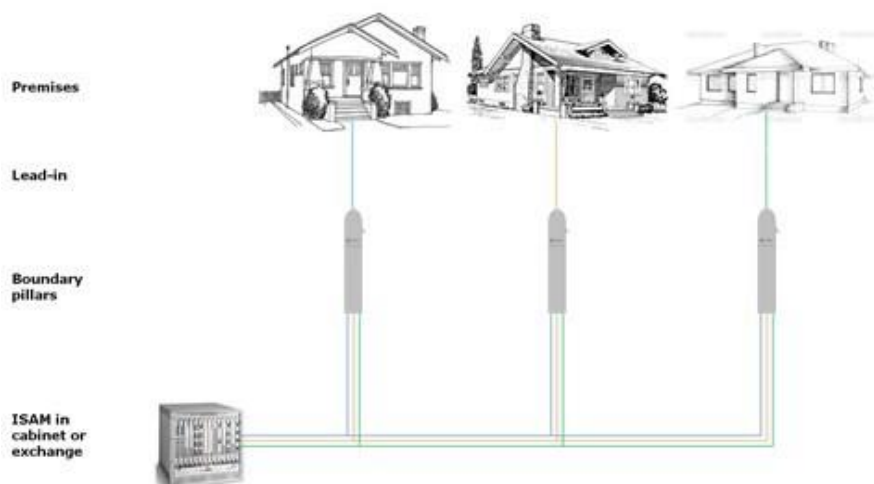
Multiples

What is a multiple?

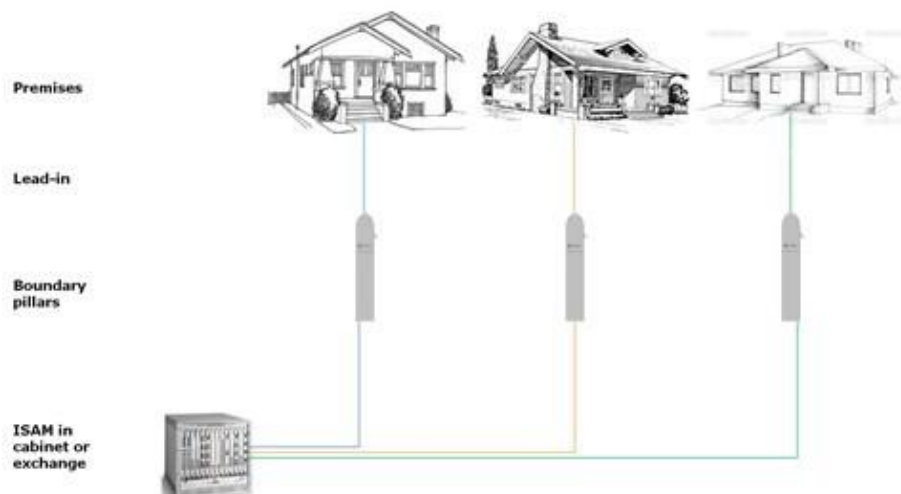
A multiple is a pair of copper wires in a cable appearing across a number of pillars. They can be found in the network and in the home.

Multiples significantly increase the distance signals travel and the amount of interference on a line, even though the premise appears to be close to the cabinet or exchange.

Access lines with multiples



Access lines without multiples



The impact of multiples

Attenuation is the gradual loss in intensity of the broadband signal as it travels through the copper line.

The maximum attenuation of VDSL2 on a copper circuit without multiples is a theoretical loss of 10.8db. The performance of the service degrades sharply once this attenuation is exceeded. Factors such as multiples or noise interference from external sources such as power transformers can result in significant signal loss.

Home wiring, particularly quality of the wiring and length, impacts more on VDSL2 signals than ADSL2+ due to the higher frequencies involved. We recommend cat5e wiring as a minimum from the ETP and a VDSL splitter to the location of the VDSL router.

Using the multiples report as part of VDSL conversations with your customers

The multiples report should be used to assist you with your customer conversations where they appear to be in the VDSL zone, particularly according to our mapping tool, but the distance from the exchange is further than it appears due to the presence of multiples on their line.