

Simplifying Copper Qualification with EXFO's SmartR™

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Service providers deploying advanced services such as IPTV and high-speed data over DSL face a common challenge: how to train their field workforces to ensure that all circuits are correctly qualified and meet the required performance standards. However, OPEX pressure often means that the more experienced field technicians are replaced by lower-cost, less-skilled new hires, or even contractors.

Yet, the performance of the so-called “last mile” to the customer premises is critical in order to provide reliable triple-play services. The first step in verifying the quality of the copper loop is to check for basic fault conditions like open circuits, short circuits, bridged taps, presence of foreign voltage and so on.

EXFO's unique SmartR™ feature set provides an efficient, intelligent and automated method of detecting and locating the most common service-affecting conditions. It automatically runs the most common line tests, providing graphical, color-coded results and pass/fail indications to detect conditions including shorts, grounds, opens, battery faults, splits and imbalances. In addition, SmartR uses advanced technology to provide the additional capability of accurately locating potentially service-affecting faults. This unique EXFO set of features presents results in an easy-to-understand, graphical format, making copper troubleshooting easier than ever. What's more, SmartR™ requires almost no setup by the user; it can be used by technicians of any level, even those with minimal copper-testing experience and training.

The two main SmartR™ features are called Pair Detective and FaultMapper.

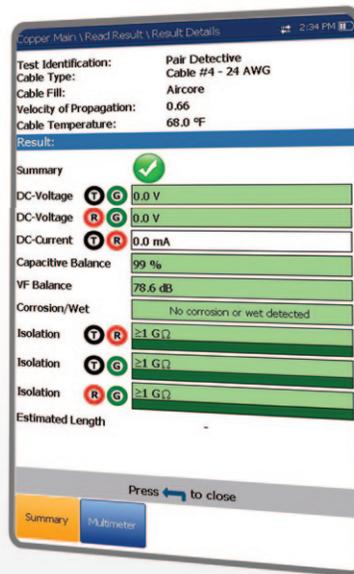
PAIR DETECTIVE: EASY AND FAST ANALYSIS OF LOOP QUALITY



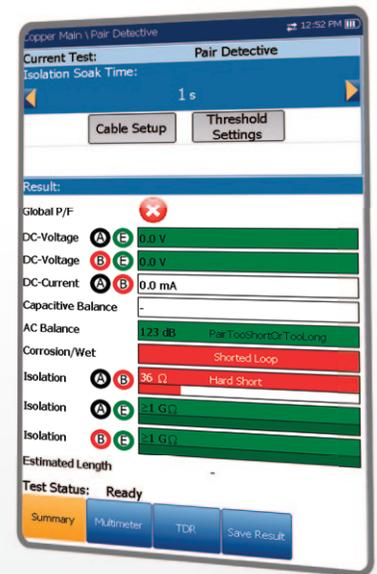
Pair Detective automatically runs a set of copper measurements and analyzes the results to detect service-affecting fault conditions such as:

- > Active line or unacceptable foreign voltage
- > Open circuit, split or unbalanced pairs
- > Corrosion or moisture in the cable
- > High/low-resistance shorts and grounds

Pair Detective also automatically reports the length of the line, which is key information in determining what data rates and services a line is able to support.



Pair Detective verdict: good circuit.



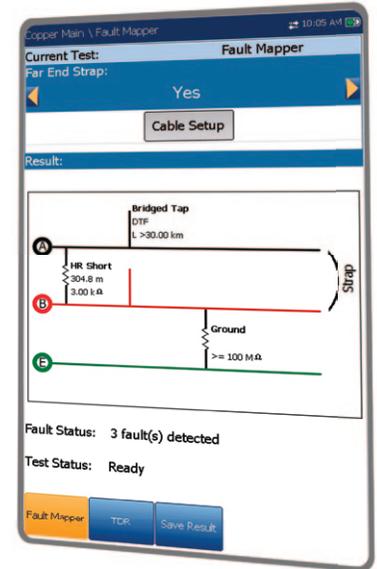
Pair Detective verdict: faulty circuit.

FAULTMAPPER: INTELLIGENT LOCATION OF CIRCUIT FAULTS

FaultMapper uses TDR, FDR and RFL technology to generate a simple, intuitive picture of the circuit. In addition to clearly showing the circuit length, it indicates the type and location of many common faults including:

- > Open circuits
- > Bridged taps
- > High/low-resistance short circuits and grounds

Again, this test runs automatically, and the interpretation of the results is done by built-in advanced algorithms and presented in a clear, easy-to-understand format. This allows the user to quickly locate and identify the potential faults and further investigate to remove any faults using the other capabilities of the test set.



FaultMapper results.

CONCLUSION

EXFO's unique SmartR™ technology makes copper troubleshooting quicker and simpler than traditional manual methods, translating into cost and time savings for service providers. Moreover, it ensures that testing is being carried out using uniform and repeatable methods, allowing network operators to roll out advanced services with confidence and as cost-effectively as possible.

The SmartR™ feature set is exclusively offered with these MaxTester copper-based test sets:

- MaxTester 610 Copper Test Set
- MaxTester 635 Copper, ADSL2+/VDSL2 and IP Test Set



It will soon be available with these FTB Ecosystem-based copper-access test modules:

- FTB-610 Advanced Wideband Copper Test Module
- FTB-635 Advanced Wideband Copper and DSL Test Module



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