

## Different Testing Practices for Commercial and Residential Networks

### How do testing practices differ between commercial and residential networks?

The residential cabling environment is different from its commercial counterpart. Where commercial cabling is data and voice intensive, residential cabling also encompasses audio and video applications. To support this wider range of low-voltage applications, residential cabling media ends up being more varied and complex. Cabling types for residential installations can include UTP for data and voice, coax for home theaters, security cameras, and cable modems, and specific gauge wire for speaker systems and alarm systems.

Another difference between residential cabling and commercial cabling is the level of required bandwidth. Commercial data cabling networks must support a very high level of network traffic, and should be guaranteed to support future applications on the horizon. In contrast, residential data cabling does not need quite as much bandwidth. Usually, mid-grade cabling is sufficient for supporting today's residential data applications. This greater complexity of media types and lower bandwidth requirement give rise to unique testing needs for residential versus commercial cabling installations.

For commercial datacom and telecom applications, certification of cabling to performance standards such as TIA-568-B is absolutely necessary to guarantee the cabling system's ability to support the required bandwidth. Certification refers to the process of making measurements and then comparing the results to rigid predefined standards requirements, so that a pass/fail determination can be made. For example, in the case of a Category 5e link, a field test instrument such as the Fluke Networks DTX-1800 will make many thousands of measurements across predefined frequencies and compare them to a complicated formula before an answer can be obtained. Upon passing these rigid standards, future application standards specifying the use of this category of cable can be applied successfully.

In contrast, residential cable testing standards and tools need to cover a broader range of media types, and require less in terms of data performance testing. In response to this

need, the new TIA-570B residential cabling standard now calls for "qualification testing." The qualification method allows installers to test and document that any cabling link will support the data needs of residential networks like 100BASE-T, as well as applications like CATV, VoIP, audio/video, and security/alarm. Results are stored in the test unit, and can be uploaded to a PC, printed out, and provided to builders or homeowners. Qualification testers like the Fluke Networks CableIQ Residential Qualifier also have powerful installation verification and troubleshooting capabilities that allow residential installers to replace multiple tools for testing and ID-tagging all voice, data, video, audio, and security cables and outlets.

How is qualification testing valuable for residential installers? The key to qualification testing is that it provides an economical way to document that cabling installations are defect-free, and will meet builder expectations for quality and reliability. Getting called back to jobs is expensive, and avoiding them yields bottom-line savings. Ensuring installations meet TIA-570B standards allows installers to virtually eliminate these expensive callbacks. Also no documentation often results in disputes over the cause of cabling problems. These disputes are embarrassing and reduce the credibility of installers. Generating professional qualification test reports definitely proves the cause of cabling failures and makes disputes a thing of the past. The ultimate result is improved credibility of the installer, and increased builder satisfaction.



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