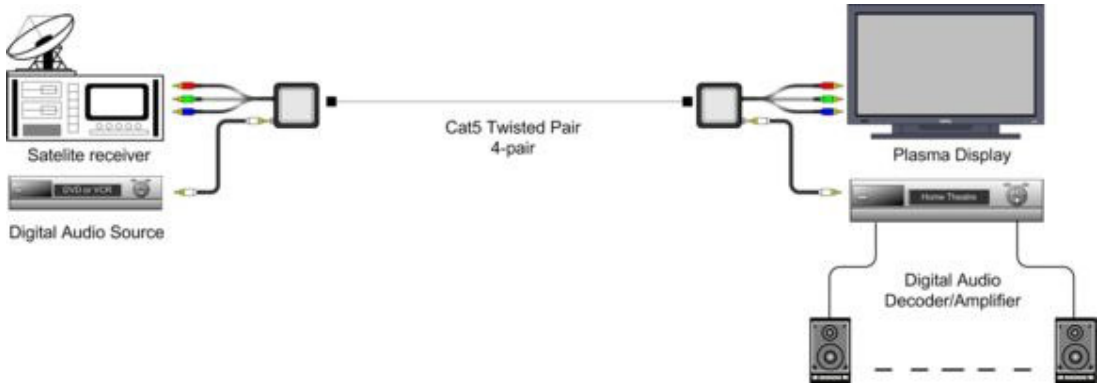
HDTV over Cat5 Technology Opens Door to New Applications

The trend toward to structured cabling coupled with the need for higher resolutions is creating synergy for HDTV over Cat5 and in the coming year, users can expect to see add-on products that support a more complete HDTV cabling solution.

Introduction:

HDTV is experiencing unprecedented market growth and the number of applications are mushrooming; digital signage, retail merchandising systems and custom home installations to name a few. HDTV may be distributed via different analog and digital video formats. Component video (YPbPr/RGB) is one of the more popular standards and new techniques in streamlining the cabling are developing.

Until recently component video only supported 480i/p via Cat5 cable. Today, passive video balun technology comfortably supports HDTV (720p, 1080i/p) transmission via Cat5 twisted pair, thus opening up new application possibilities. HDTV channels from terrestrial and satellite services may be distributed throughout a building using the existing premises wiring infrastructure. By converting coax-based component video to Cat5 at the source and display, HDTV equipment may now be connected to a local wall outlet similar to connecting a PC LAN.



Some DVD players feature up-converter capability that supports HDTV formats. They can also be played out through the structured cabling system as a cost-efficient alternative to the tri-coax component cables.

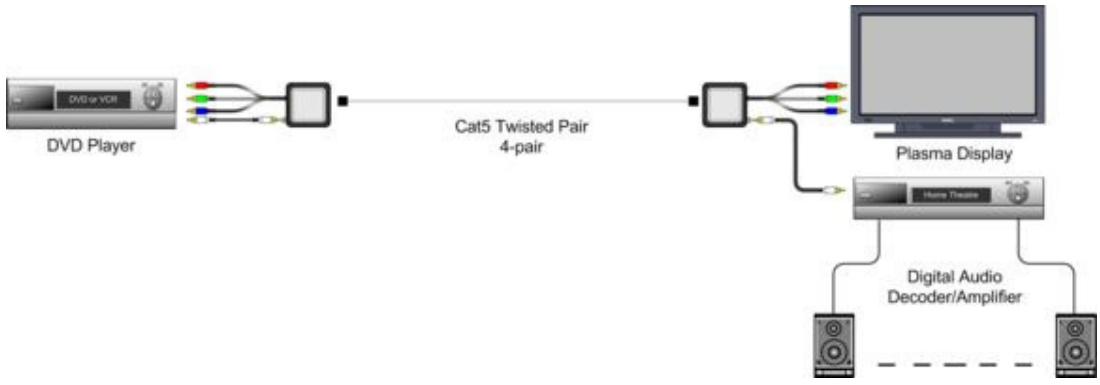


Image Quality:

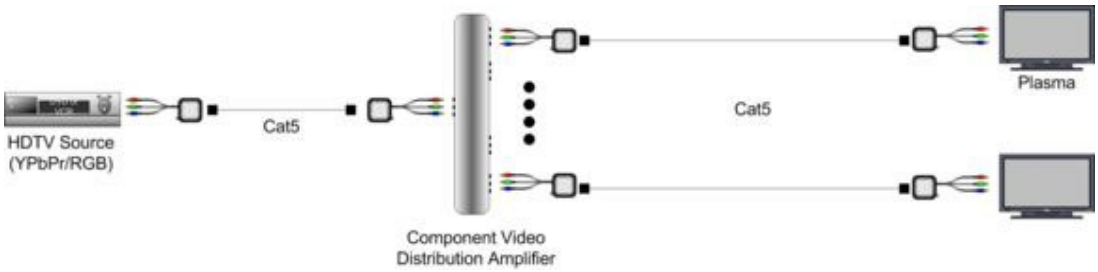
One of the issues the market asks is whether picture quality is compromised when Cat5 cable is used for HDTV instead of standard component video cable. According to MuxLab, there is every indication that if Cat5 twisted pair is used with component video baluns within specified distances, there is no perceptible difference in image quality between high quality component video cable and Cat5. Furthermore, due to the excellent noise immunity, the maximum achievable distance via Cat5 can exceed that of component video cable. Typically, MuxLab has found that RGB/HDTV supports a maximum distance up to 500 ft (152m) at 1080i/p resolution over Cat5. The Telecommunications Industry Association (TIA) specifies that a telecom room must be within 100m approximately of any modular Cat5 outlet and therefore HDTV is supported in a structured cabling environment.

Enabling Technology – Component Video Baluns

The enabling technology behind HTDV over Cat5 is the component video balun. As mentioned in the last article a video balun converts unbalanced video into a balanced format allowing it to be transmitted over twisted pair with minimal interference due to external noise. In order for a component video balun to work in the component/HDTV environment, it must operate reliably over the complete HDTV frequency range.

Multi-display Applications

In multi-display applications such as digital signage systems, a single HDTV source may be distributed to multiple displays or to multiple rooms using component video baluns and component video distribution amplifiers. This approach allows any component video equipment to be plugged into any convenient modular wall outlet for flexibility in moves, adds and changes. Routing to different rooms may be accomplished using Cat5 patch panels. The following diagram illustrates the basic approach.

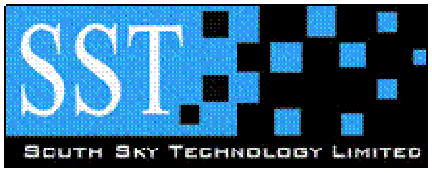


Conclusion

In summary, HDTV over Cat5 is expected to facilitate many applications that would otherwise not be technically

feasible or too costly using traditional component video cable. The trend toward to structured cabling coupled with the need for higher resolutions is creating synergy for HDTV over Cat5 and in the coming year, users can expect to see add-on products that support a more complete HDTV cabling solution. For more information it is recommended that the reader contact their local custom AV installer.

Call us now @ (852) 2152 8966 or write to sales@sstl.com.hk for more details.



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