Category Cables and their non-Category applications.

100-Ohm twisted pair cabling has come a long way since the first launch of the 568 standard. Categories 1, 2, 4, and 5 are obsolete. Category 3 hangs on by a ripcord and Category 5e has already lost its market lead to Category 6. Category 6A is moving out of data centers and demand is increasing for even higher performing cables.

There are a lot of acronyms related to cable construction, you've heard of UTP and STP before? Well those are not accurate enough to identify a cable anymore. Now you have these acronyms:

U/UTP:	Unshielded twisted pair cable, no shield anywhere.
F/UTP:	Overall shielded with a foil shield and drain over a core of unshielded pairs.
SF/UTP:	Same as F/UTP but an overall braid shield over the foil shield and may or may not have a drain wire.
U/FTP:	Shielded twisted pair cable, each pair individually shielded with a common drain wire.
F/FTP:	Screened shielded twisted pair cable, one overall shield and each pair individually shielded with a common drain wire.
SF/FTP:	Same as F/FTP but an overall braid shield over the other shields and may or may not have a drain wire.

There are more, but these are the most common constructions.

Today the twisted pair infrastructure is used for many applications that are definitely not under the original LAN standard. Sending high frequency media over twisted pair used to be an expensive alternative to cables made for that specific purpose, remember RGB cable? Now the cost of electronics has plunged and twisted pair cables are relatively inexpensive and better performing than ever before, the installation using media transceivers over twisted pair is the standard versus the exception. Why? Because that twisted pair infrastructure will support many new technologies well into the future whereas the old analog RGB has to be removed and replaced to be upgraded. You only have to install one cable to solve all your transmission issues. All content will be reduced to network data in the next few years, which will be distributed via twisted pair, fiber optic, RF coaxial cable and wireless means. All the esoteric cables will go away or only exist to connect the transceivers to the sources and sinks in very short, inexpensive lengths.

Shielded versus unshielded cable is another issue. As frequencies increase things begin to happen. First the electromagnetic field around the cable expands. With Cat6A cables the U/UTP versions have huge honeycomb airspaces in the jacket to add space to keep the cables away from each other. An F/UTP version or U/FTP version has a smaller OD and the shield naturally minimizes the electromagnetic field. As many of us have found out, using U/UTP cables with HDMI or DVI transceivers is a recipe for repeated service calls. Dial up your Verizon phone in proximity to one of these and watch the display blink in and out. Yes, it is that bad. However drop in an F/UTP cable and try the same thing… no issues or problems. I've had trouble calls where fans, ballasts, intercoms, 70 volt speakers, and even an air compressor all contributed to dropped HDMI feeds due to interference on U/UTP cable. Replacing that

U/UTP cable with an F/UTP cable fixed the issues. In our ever increasing expansion of wireless devices and technology, the opportunities for interference will keep increasing.

HDbaseT® is a newer AV standard based upon Category 5e and 6 cable standards. This signal subset works best with shielded category cable and a shielded infrastructure. Crestron, AMX, Savant and numerous other companies sell equipment using the HDBaseT® standard. ALL specify shielded cables for their applications. You also need to ensure you are using Power over Ethernet compatible connectors (PoE). Feed through types like the EZ-RJ45® are not compliant and can cause shorting in the equipment receptacles. EZ-RJ45's are great for LAN-specific installations but many A/V equipment manufacturers are now excluding these in their installation manuals due to the issues related to exposed conductors. F/UTP cables are good up to 1080p resolutions, for 4K and other really high frequency use, use a Cat7 type with individually shielded pairs. Liberty offers Category 5e, Category 6, and Category 6A in the F/UTP format with associated connectors and tooling for applications up to 1080p60. We offer Category 7, European spec Class F cable in S/FTP formats for resolutions up to and surpassing 4K@30Hz. Here is a quick listing of our products and matched connectors for the formats.

Cable Type	Part Numbers	Connectors
Category 5e Plenum:	24-4P-P-L5SH-(Color)	RJ45-L5E-STP, 111S08080016C34
Category 5e Riser:	24-4P-L5SH-EN-(Color)	
Category 6 Plenum:	24-4P-P-L6SH-(Color)	OCCSFP6A, RJ45-L6-STP, 111S08080091C34, 106190, 106192
Category 6 Riser:	24-4P-L6SH-(Color)	
Category 6A Plenum:	24-4P-P-L6ASH-WHT	1401405012-I, OCCSFP6A, RJ45-L6-STP, 111S08080091C34, 106190, 106192
Category 6A Riser:	24-4P-L6ASH-WHT	
Category 7 Riser: (NEW)	24-4P-L7SH-BLU	1401405012-I, OCCSFP6A, 106190, 106192
Category 7 Plenum: (NEW)	24-4P-P-L7SH-BLU	

All of Liberty's category cable offerings are third party NRTL (Nationally Recognized Testing Laboratory) verified to the respective Category performance.

As always, Test your links!

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