ASI vs SMPTE 310

In modern day digital television operations the encoder is use to "multiplex" all the individual program streams together. Most encoders will output this transport stream in two different formats, ASI and SMPTE 310.

ASI (Asynchronous Serial Interface) is a form of serial communication in which the communicating endpoints' interfaces are not continuously synchronized by a common clock signal. Instead of a common synchronization signal, the data stream contains synchronization information in form of start and stop signals, before and after each unit of transmission, respectively. The start signal prepares the receiver for arrival of data and the stop signal resets its state to enable triggering of a new sequence.

SMPTE 310 uses Synchronous serial communication which is a serial communication protocol in which "data is sent in a continuous stream at a constant rate. Synchronous communication requires that the clocks in the transmitting and receiving devices are synchronized – running at the same rate – so the receiver can sample the signal at the sametime intervals used by the transmitter. No start or stop bits are required. For this reason "synchronous communication permits more information to be passed over a circuit per unit time than asynchronous serial communication.

ASI and SMPTE 310M are not "video standards-based" signals. They are strictly an interface, the format for how the data is carried.

While both are designed to transport data from one point to another, they differ in the way it is delivered. ASI is designed to transport MPEG video streams, primarily for television applications over coaxial cable, at up to 270 Mbps over 75-ohm coaxial cable.

SMPTE 310M is a standard that describes the physical interface and modulation characteristics for a synchronous serial point-to-point interface that carries, in a low-noise environment, MPEG transport bitstreams at rates up to 40 Mbps.