



## COMPARING VIDEO LATENCY, RESOLUTION & COMPRESSION STANDARDS

### BACKGROUND

Latency is the measurement of the end to end delay electronic signals experience when passing through any path or processing. For video signals this is a very important measurement when there is user interaction. This delay is often seen when news reporters are in far flung countries speaking live on television via a satellite transmission link. This latency can be several seconds but is generally acceptable in this instance as the speed of the news content is more important than the delay.

Other applications are more critical of a long delay like when using a computer mouse and keyboard in an extended KVM situation. An onscreen cursor that lags behind the actual movement of the mouse is incredibly frustrating. Another example is when in a video conferencing call particularly with more than 2 people and the conversation is stunted because of the inability to time or synchronise replies.

However, not all AVoIP applications are latency dependant. Simple video distribution to single or multiple displays in general does not care if the image arrives a few milliseconds after it was sent. This applies to many uses of digital signage communications, entertainment systems and remote teaching.

### MEASUREMENTS

Below is a table showing examples of latency measurements for video resolutions and compression standards. Typically the delay is about a frame of video which will vary depending on the refresh rate.

| Video Resolution | Compression Standard | Latency (end to end delay) | Network Switch | Smart-e Product |
|------------------|----------------------|----------------------------|----------------|-----------------|
| 1080p@60         | H.264/265            | <120ms                     | 1GBE           | VHX-6330/6350   |
| 4K@60 4:4:4      | H.264/265            | <50ms                      | 1GBE           | VHX-8330        |
| 4K@30 4:4:4      | JPEG 2000            | 16.67-33.34ms              | 1GBE           | VHX-7330        |
| 4K@60 4:4:4      | JPEG 2000            | 16.67-33.34ms              | 1GBE           | VHX-9330        |
| 4K@60 4:4:4      | SDVoE                | <1ms                       | 10GBE          | VHX-10330       |

The acceptable delay is any installation will be judged by the user experience and the application.