



VISLINK
At the heart of the action



HIGH QUALITY HD VIDEO WITH HEVC COMPRESSION ON VISLINK HCAM



The video landscape is changing rapidly. More Subscription Video on Demand content is being consumed year-on-year - with viewers being lured to growing platforms offering big budget drama showcasing the best of high-quality production values. Through these shifts in viewing behaviour, across the globe, live Events viewing still accounts for approximately 50% of the top-rated consumed content.

HCAM & ULTRARECEIVER LD

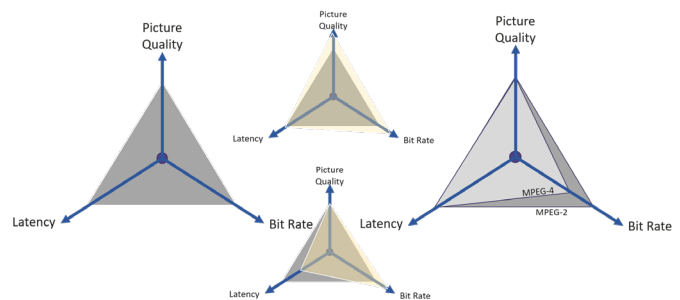
Underlying the draw of live Event viewing is the impact on viewer expectations from SVoD drama programming. Consumers now expect to receive the same high quality, high production values in major live Events programming as they are experiencing elsewhere. Production companies are reacting by experimenting with new ways of providing the viewer with a higher quality offering – More camera angles, a Point-of-View experience and all delivered cost effectively.

Delivering on a customer desire for a more immersive experience, production companies are increasingly turning to wireless camera solutions as a means to provide new camera angles with the flexibility to quickly react and move the camera viewpoint from one location to another -without the restrictions of cabling. But how to manage the increased demands on RF spectrum and ensure robust content delivery from the camera, at range?

In implementing a wireless camera solution, video quality matters – The compressed feed from the wireless camera must offer an equivalent quality to a line camera feed. The wireless camera feed must match the needs of the live broadcast chain – passing through multiple compression stages from the Event to the broadcast center, potentially through international distribution to the consumer platform provider. To offer a premium experience, to allow the potential of HDR production the wireless camera feed must originate content as 10-bit 4:2:2 compressed video.

The wireless camera feed must also offer an end-to-end transmission latency that matches that of the line cameras – avoiding the difficulties of switching between camera feeds which have a time offset carrying a risk of repeating or missing critical action in the switch between a wired and wireless camera.

There is however a challenge. Video quality, compressed video bit rate and latency have a linked relationship. Increasing the video quality requires an increase in video bit rate. Reducing the latency also requires a bit rate increase.

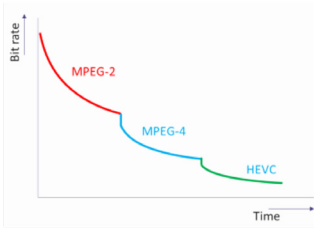


Video quality, Bit-rate and Latency are interrelated

Increasing the bit rate requires a greater bandwidth on an RF link and RF bandwidth can be in short supply.

A change in video codec has the potential to alter the video quality, latency, bit rate dynamic. A more efficient codec can provide good quality video at a lower bit rate. HEVC video compression has promised a 50% bit rate reduction compared to MPEG-4. The history of video compression suggests that the promised, maximum theoretical improvement is rarely achieved in the first generation of practical technology. The gains are realized through a succession of code releases.

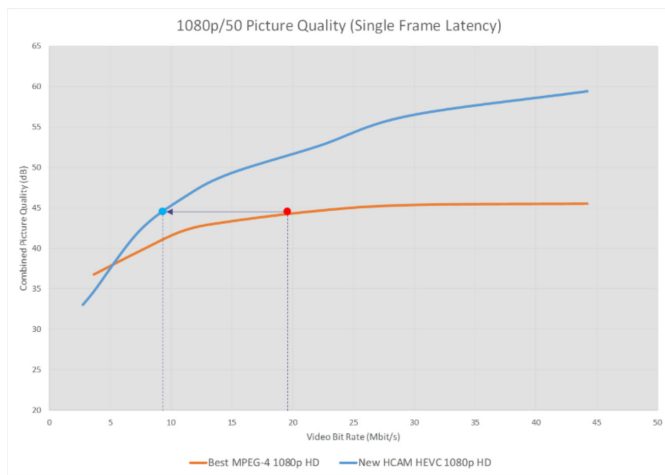
History of Video Compression



- New codec promises a 50% bit rate reduction over the previous generation
- 1st Gen of codec delivers immediate improvements
- A number of performance updates required to realise codec's full potential

1st generation HEVC video compression has been used to great effect in enabling practical UHD wireless camera solutions. The compression gains from the technology allowing a 4k camera feed to be transmitted within available wireless spectrum.

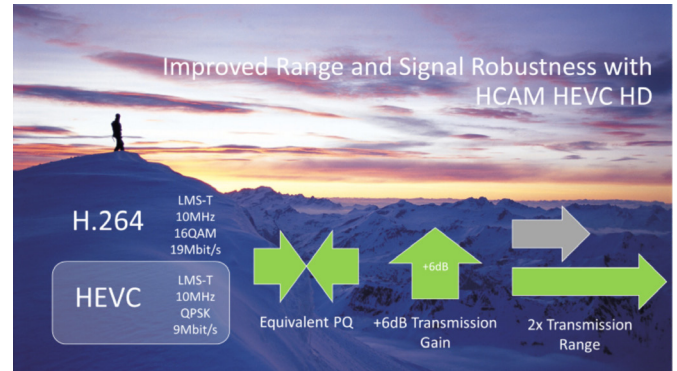
Vislink is now bringing to market an update for its HCAM wireless camera product that increases the HEVC compression efficiency further. This efficiency gain offers a big potential benefit to broadcasters using the equipment in a HD or HD HDR environment.



Picture quality measurements and subjective video testing has now demonstrated that the latest Vislink HCAM can provide equivalent quality 1080p HD video compared to the best MPEG-4 1080p HD resolution wireless camera devices – at a significantly lower bit rate, with an equivalent latency. The HEVC compression gain and bit rate reduction that the Vislink HCAM offers is significant enough to allow a reduction in modulation scheme from 16QAM to QPSK.

	Best H.264	New HCAM
Modulation	LMS-T	LMS-T
Bandwidth	10MHz	10MHz
Constellation	16QAM	QPSK
Encoding	H.264	HEVC
Bit Rate	19Mbit/s	9Mbit/s

The change to the RF modulation that improved efficiency HEVC compression allows - compared to the best performing MPEG-4 HD transmission systems, provides 6dBs more robustness to the HD 1080p transmission link budget. Camera operators can utilize this increased link budget gain to ensure greater robustness of their wireless camera transmissions - ensuring less risk of picture drop-outs, reduced rigging of additional reception antenna installations or a doubling of line-of-sight transmission range.



The HEVC compression gains now available in the Vislink HCAM wireless camera transmitter also benefit productions that are originated as 1080i. This despite the fact that HEVC has fewer enhancements in its toolset for interlaced formats – making compression gains in 1080i a significantly harder proposition for a HEVC codec. Vislink HCAM can now match the compression gain, latency and picture quality of the best MPEG-4 wireless camera solutions in 1080i formats too.

The HEVC compression enhancements now available in the Vislink HCAM wireless camera transmitter allow this top-end device to be used, not only in the top tier of UHD, HDR Event production but now also as an all-round, every-day wireless camera device - providing 1080p HD feeds from twice the range that an MPEG-4 system can achieve and with the ability to match 1080i MPEG-4 systems in all respects and with the addition of encode-decode quality gain that comes from a full 10-bit 4:2:2 compression engine.

Vislink HCAM/UltraReceiver LD Format Support

	H.264 HD Compatibility	HD 1080i HEVC	HD 1080p HEVC	UHD HEVC	HDR	Low Latency HEVC
HCAM	✓	✓	✓	✓	✓	✓

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For more information on any of the products in the Vislink Technologies portfolio please contact: sales@vislink.com

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