

April 3, 2018

The Future of Video Surveillance: 4K HD-TVI

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HD-TVI 4K and Beyond:

In the megapixel surveillance world, the need for higher definition surveillance continues to grow. Those that complained that D1 and 960H video were insufficient back in 2013 are now complaining that 720p and 1080p video resolutions are no longer enough. Toward the first half of 2017, 4- to 5-megapixel HD analog video surveillance products were released to the market, effectively doubling the 1080p resolution previously supported by HD analog solutions. Around the same time, Techpoint released 4K HD-TVI products but demand was limited. Why were the people asking for higher resolutions not jumping at the new 4K HD analog solutions?

Cost is a Major Factor:

One of the main reasons 4K analog solutions are not more popular is due to the cost of the solutions available. Current 4K HD analog solutions use 4K IP camera SOCs combined with an HD-TVI transmitter. This solution is essentially more expensive than a 4K IP camera product as it adds additional costs on top of the 4K IP camera SOC. Camera lenses and 4K sensors are also more expensive due to lower demand and lack of competition in the industry. Thus, cost is a major reason why 4K analog products have met limited demand.

H.264 Versus H.265 Compression: Size Matters

Another reason 4K analog has thus far seen limited popularity is due to compression algorithms. For a long time, installers and other video surveillance users took exception to the recording time of 1080p solutions due to large file sizes of H.264 compression algorithms. With H.264, file sizes of 1080p recordings were essentially double that of 720p recordings, and 4- to 5-megapixel recordings were double that of 1080p. Thus, the complaint against larger recording file sizes was further exacerbated with 4- to 5-megapixel resolution as well as

4K resolution. This has significantly hindered the adoption of 4K analog solutions.

What has Changed in 2018: H.265 Compression and Techpoint's TP3808

With new technologies to be introduced in 2018, the adoption of 4K analog solutions is expected to significantly increase. With the adoption of H.265 technology in the first half of 2018, many DVR manufacturers will be able to solve the limitations of larger file sizes of 4K recordings. With an improvement of over 70 percent recording efficiency with H.265 over H.264, the limitations of larger file sizes and shorter recording times of higher megapixel resolutions are expected to be effectively addressed.

In addition, with the expected release of cost-effective 4K image signal processors in 2018, the cost of 4K HD-TVI cameras is expected to significantly decrease as well. In Q2 2018, Techpoint plans to release TP3808, an advanced UHD 4K image signal processor to the mass market. The TP3808 is a cost optimized image signal processor integrated with Techpoint's latest HD-TVI 4.0 transmitter technology supporting universal HD analog output as well as breathtaking 4K UHD image quality.

Many CMOS image sensor vendors are also launching cost-effective 4K UHD sensor products in the 2nd half of 2018. Many camera manufacturers are predicting that 4K analog cameras will cost a fraction of the price of 4K IP camera products. Coupled with the adoption of H.265 technology in DVR products, the release of the new

TP3808 chipset is expected to help drive the new trend of low-cost higher resolution UHD 4K analog demands well into the next decade. ■



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