Wherefore Art Thou Oh 60Ghz?

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Back in January of 2008 all of the online technical trade press was touting that Wireless HDMI based upon 57 to 64GHz (i.e 60GHz) spectrum had finally arrived in the form of WirelessHD. Targeting HDTVs and CE equipment, WirelessHD was supposed to be the panacea for wireless audio and video for the home. Everyone saw a few tech demos from major OEMs at CES in January 2008 and were told WirelessHD would ship by the 2008 holiday season. It didn't happen. At CES 2009 we saw the next round of hype, including announcements by some additional HDTV OEMS. Holiday season 2009, two expensive models shipped. Yawn. Then, at CES 2010, Vizio announced their 3D HDTVs would roll out with WirelessHD. That is nice – but so far it hasn't happe

As of today [Oct 2010] Vizio has announced their latest HDTV lineup for the fall and WirelessHD is still not available. No other new WirelessHD product has been announced either. What is more interesting is that after 3 years, WirelessHD and the vaunted 60GHz bandwagon hasn't gone anywhere. Moreover, it hasn't showed up in any other interesting applications either. Why? It isn't because it can't be made to work. The reality is that today it's just too big, too expensive and the 60GHz standards hasn't settled down yet. Essentially 60GHz has passed over the top of the hump of the hype curve and is now accelerating into the trough of despair and the valley of irrelevance.

Clearly the major HDTV OEMs are disillusioned with WirelessHD and 60GHz right now – otherwise it would be shipping in a wide range of systems. So when will WirelessHD ship in significant volume? Hard to tell – maybe never. Perhaps after the next generation of WirelessHD chips ship in the fall of 2011; though more likely it will be later than that. So, what are the HDTV OEMs doing in the mean time for transmitting wireless HD video?

There are at least two distinct applications we need to look at. First, if a customer simply wants to watch movies using Netflix from the internet then they can use WiFi

to send data to the HDTV, which then buffers up the data sufficiently to hide most of WiFi's unreliable data delivery and the HDTV can play your movie. This generally works OK and this addresses an important segment of the market. It does not address the desire by customers however to have the ultra-thin HDTV sit up on the wall with the set top box or Blu-ray player placed some place else in the room. For a true wireless solution to the HDMI cable replacement dilemma the alternative solution that some OEMs are turning to is to use the proprietary WHDI wireless Amimon solution. WHDIs advantage over WirelessHD is that it is cheaper, uses less power and is a lot smaller, though early reviews indicated the range is very limited. The problem is that it is proprietary, a no-no when trying to get major vendors to interconnect a variety of equipment. The impact of some OEMs choosing an Amimon kit will be to stall adoption of WirelessHD and fragment the early market. In the mean time, what will happen to WirelessHD? Given the current standards situation and lack of products in the market, it seems it will fade away as it gets usurped by the WiGig express.

The last big question then remains – "where does wireless HD video go from here?". Frankly, the outlook is a bit fuzzy – but here is my current vantage point; and it may surprise you.

H.264 and DLNA.

What you say ? – nobody is using DLNA. It is simply another set of useless stickers glued on the box or on the side of my new high end HDTV (though don't forget is also a part of Windows-7 for PCs) Your question is probably, how did he jump from WirelessHD and WHDI to DLNA? Hang with me for a moment.

There are two trends happening in the industry today that will change the entire thought process of HDTV OEMs regarding delivery of wireless video. One is that more and more HDTVs support DLNA. DLNA compatibility implies that the video decoder inside the HDTV must be capable of decoding H.264 as well as the older MPEG-2 and a variety of other familiar PC oriented video formats. Secondly, more and more PCs (including Windows-7) and Smartphones are also becoming DLNA compatible. In addition the graphics engines and the multi-core processors for new PCs that are coming from Intel and their CE4100 or new Sandybridge or new AMD Fusion products are becoming capable of taking real time video and compressing it into H.264 in almost real time. Moreover, new Smartphone processors from Samsung, such as the C110, the Snapdragon from Qualcomm, or Marvell's Armada 610 are also capable of H.264 compression. Ditto for game consoles.

The outlook then looks like this. Near term HDTV vendors will use a patch work of solutions to address the need for a wireless solution to solve the HDMI cable replacement challenge. A few will use WirelessHD in some ultra expensive high end 3D HDTVs, some will use proprietary kits using WHDI and some will use kits using UWB. Longer term HDTV, PC, Smartphone and CE equipment suppliers will begin to converge on using the H.264 profile supported in DLNA for transmitting wireless HD video, as it doesn't require them to purchase a new video decoder. By using H.264, the wireless throughput requirements will be met by being able to transport 40 to 120Mbps of high QoS stable data that doesn't suffer from radio interference from

WiFi sources. Therefore the HDTV makers won't use WirelessHD, as they won't need the expense associated with the big pipe 60GHz technology supplies. The HDTV vendors will then support the DLNA protocol over two different radios. One will be the WiFi radio that they already have in the HDTV. This will be sufficient for some uses, but will suffer from bouts of jerky video due to the nature of WiFi and WiFi interference (this will be especially true in high density environments like apartments).The other radio will be UWB. Huh? Yup – UWB. The answer to this question will be the subject of a new blog in a few weeks. Until then, we are indeed getting ever closer to a "life without wires".

Eric's blog can be found at http://blog.alereon.com/ [1]

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