



New Formats and their consequences for mobile ecosystem

Qualcomm 5G Workshop
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President Ultra HD Forum

What are we going to discuss ?

“The panel will be an open discussion on how new video formats such as Ultra HD will impact the 5G Video ecosystem, on existing devices and applications (streaming to phones & tablets) but also upcoming devices and applications such as virtual reality video.”



“Stimulate widespread consumer adoption of UHD and enhanced HD by enabling the availability of compelling content from many sources, including feature films, scripted, and live television content, and its distribution through all current and emerging avenues of delivery to consumers”

* www.ultrahdforum.org

Existing Mobile Formats

Format	Application	Resolution	Codec	Bitrate
SD	Streaming	720x480x30	AVC	1M/s
HDp30	Streaming	1280x480x30	AVC	3M/s
HDp60	Streaming	1280x480x50	HEVC	3M/s
1080p60	Streaming	1920x1080x50	HEVC	4M/s
VR	DL/ Streaming	2560x1440x60	HEVC	15M/s

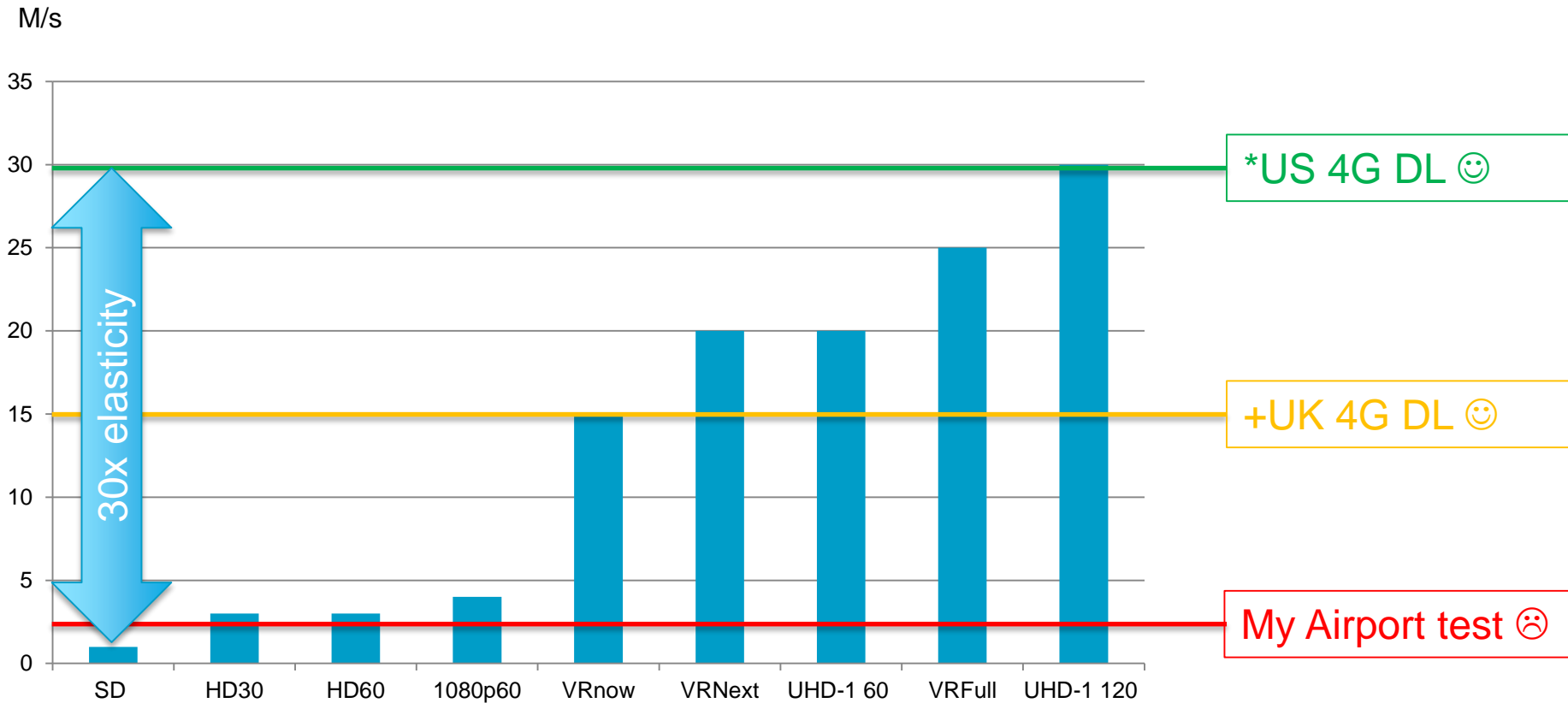
BW needs < 15M/s

Next Gen Mobile Formats

Format	Application	Resolution	Codec	Bitrate
VR next	DL/ Streaming	2560x1440x120	HEVC	20M/s
UHD-1 p60	DL/ Streaming	3840x2160x60	HEVC	20M/s
VR full	DL/ Streaming	3840x2160x120	HEVC	25M/s
UHD-1 p120 HDR	DL/ Streaming	3840x2160x120	HEVC	30M/s

BW needs doubled

Application vs NW Speed



Your Network speed may vary !

* Cnet measurement report

+ OFCOM measurement report

#	Speaker	Company	Title
1	David Price	Ericsson * + #	VP business development
2	Richard Doherty	Dolby * + ^ #	Standards manager
3	Aytac Biber	Qualcomm * #	Product manager
4	Mark Watson	Netflix * ^ #	Head of standards

* DASH IF ^ UHDA + UHDF # MPEG

- ▶ **Do we have sufficient 4G capacity to carry HD (720p60) today?**
- ▶ **What is the “theoretical” 5G BW we need to deliver a guaranteed 30M/s video experience ?**
- ▶ **Is HDR going to be a visible difference, on phones, tablets ?**
- ▶ **How about 4K, 8K ?**
- ▶ **How far are we from a mass deployment of VR Video ?**
- ▶ **Do Ultra HD Forum & Ultra HD Alliance care of anything else than TVs ?**