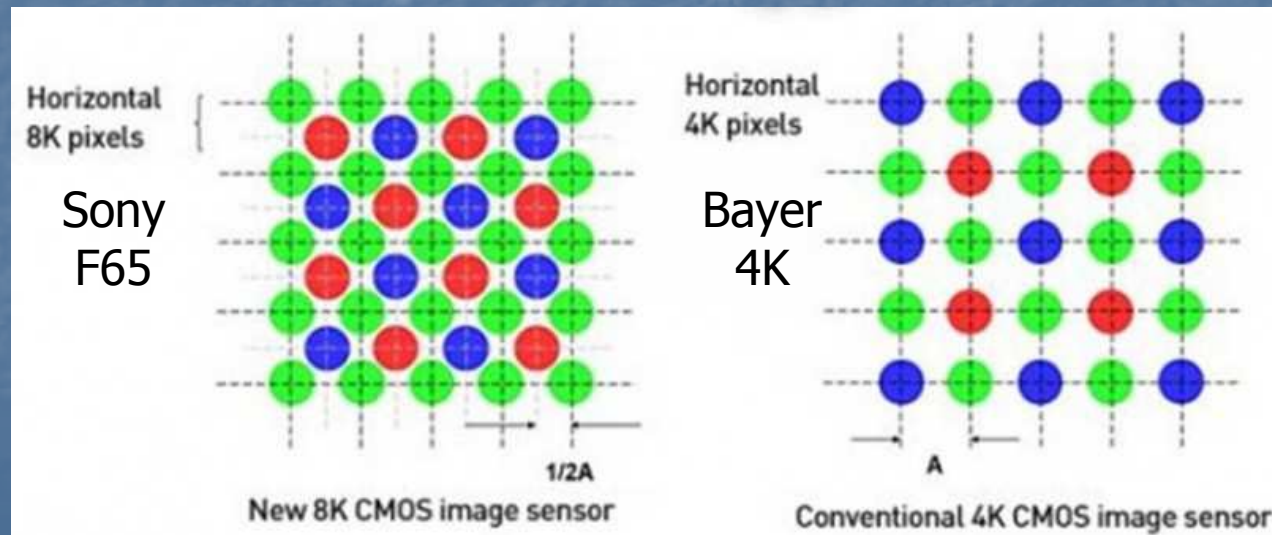


Beyond-HD-Resolution Cameras & Their Workflows



One Heck of a Home TV



4096x2160

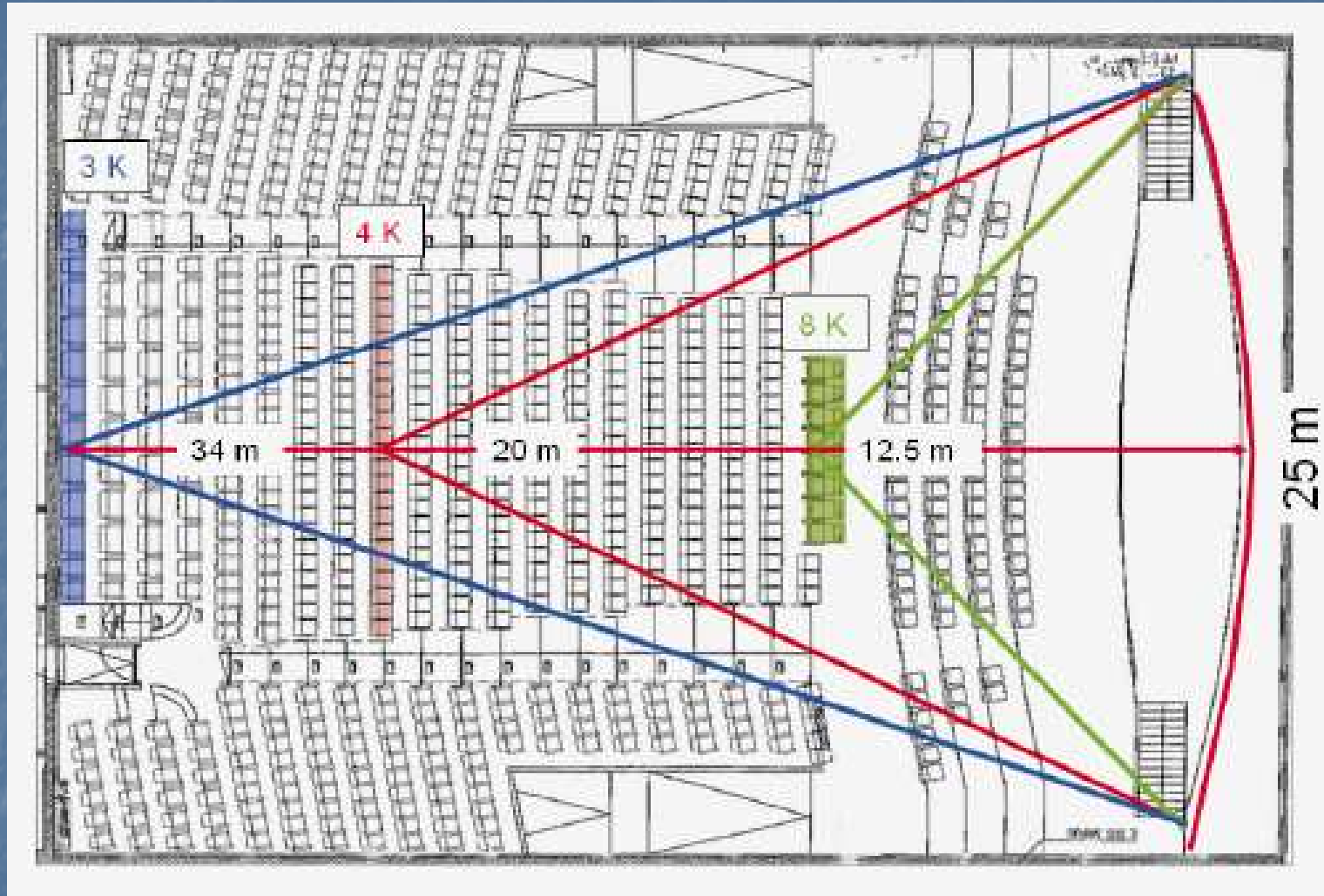
2006 August 16,
Stan Glasgow, pres.
Sony Electronics,
“next big leap” in HD
[beyond 1080-line]
could be 3-5 years

30-cpd (1862)
20/20 (6/6) vision
matches 1080-line rez
at ~ 70-inch @ 9'
70-inch:1080-line::
140-inch:2160-line

Panasonic 150-inch/3.8-m plasma TV at
2008 Consumer Electronics Show

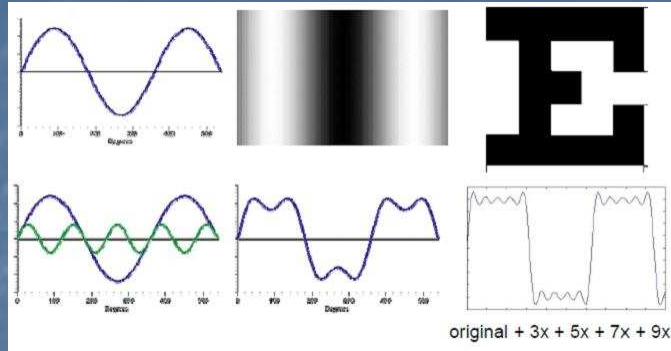
based on 20/20 vision

HDTV
≈
"2K"



courtesy of ARRI, used with permission

Problems with 30-cpd Theory



DEFPOTEC	8	20/20
LEFODPCT	9	
FDFLYCBO	10	
PEROLCFTI	11	

- Edges

- 3 chart lines below 20/20

- April 2008 SMPTE *Motion Imaging Journal*:
NHK "Research on Human Factors in UHDTV"

- possible to distinguish between 78 and 156 cpd

- 156 cpd is more than five times the 20/20 criterion

- "realness" is a function of image detail

- rises rapidly to 50 cpd

- continues rising through 156 cpd



Beyond-HDTV Spatial Resolution

- Cameras from:

- ARRI, *Astro*, Canon, Dalsa, *Hitachi*, *Ikegami*, JVC, Lockheed-Martin, *Meduza*, NHK, Olympus, Red, Sony, Vision Research

- Displays from:

- CMO, JVC, LG, Panasonic, Samsung, Sharp, Sony, Toshiba

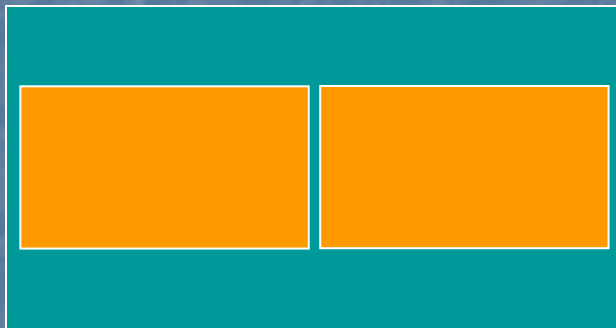
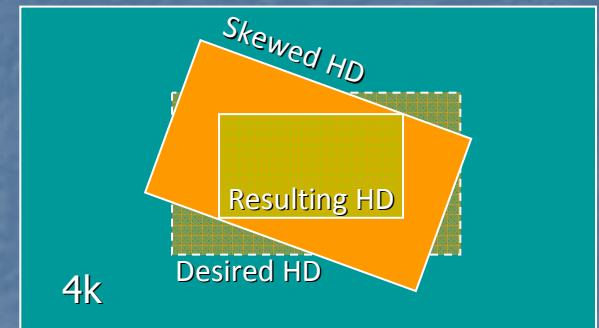
- Other gear:

- codecs, recorders, up- & down-convert, production switchers

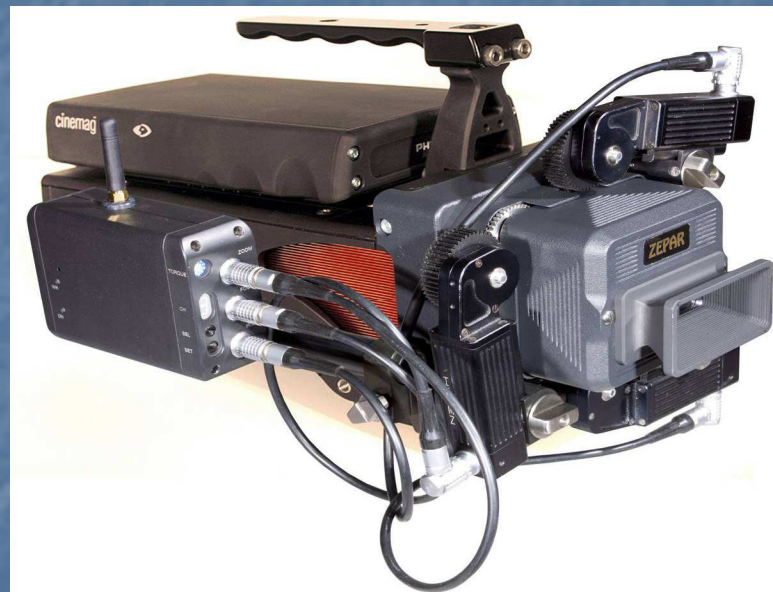


Beyond HD Advantages

- More detail
- Reframing/stabilization
- Single-sensor 3D

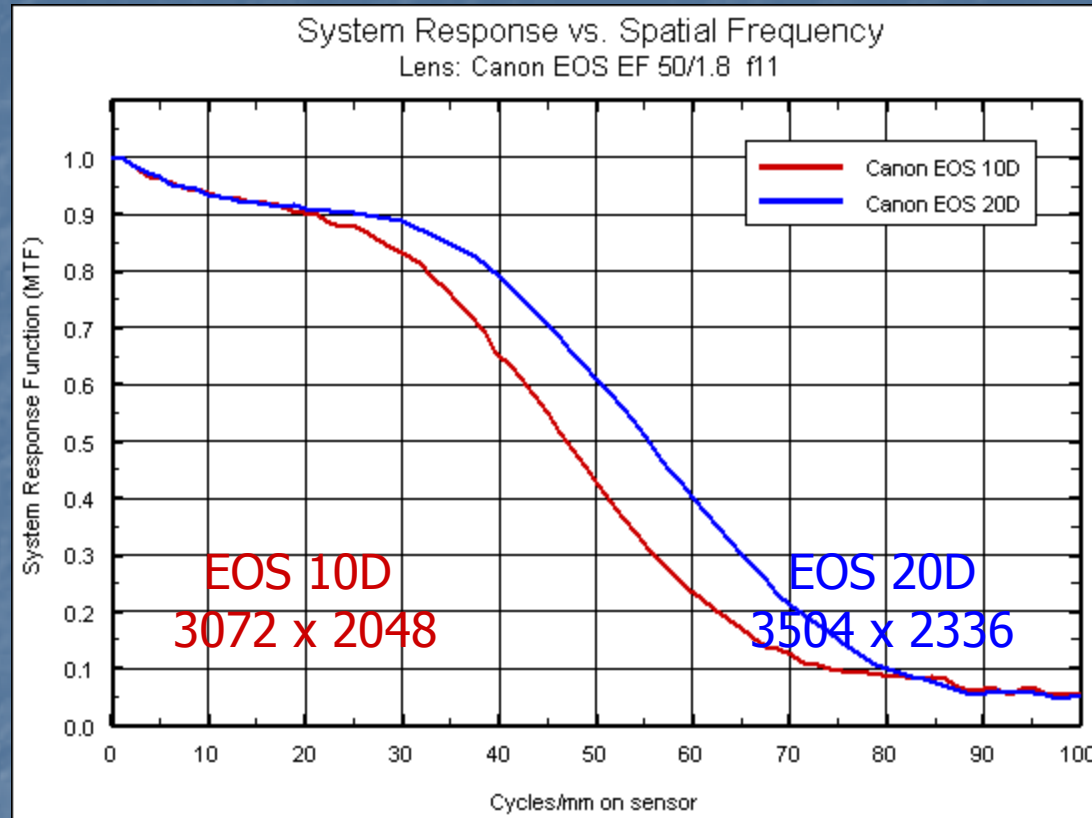


- Increased sharpness



Zepar S3D lens on VR Phantom 65

Real MTF Curves



14% linear increase in sensors

courtesy Bob Atkins www.bobatkins.com
used with permission

Real-World Sharpness Change



EOS 20D
3504 x 2336



EOS 10D
3072 x 2048

courtesy Bob Atkins www.bobatkins.com used with permission

■ Also **Disadvantages**

- lens qual., sens., dyn. range
 - compensate with larger sensor
 - or lower resolution
- data-rate rises by square of linear rez rise
 - compressed increase should be much less

The Panel

- ARRI
- Canon
- JVC
- Panasonic
- Red
- Sony
- Vision Research

For more intro (including high frame rate, high dynamic range, and a tiny bit on S3D), download “Beyond HD” at SchubinCafe.com