2/3”- Cameras Challenging the Latitude of FILM

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Agenda

- Thanks
- Some free advice
  - MTF, Aliasing, Sampling
- Being Challenged
- Conclusion

Thanks

- A man with vision and purpose who challenged and pushed for many years resulted in:
  - CineAlta
  - But most of all VIPER

MTF, SAMPLING, ALIASING

- **BASICS 4k scanning:**
  - **2kx4kx3 colors = 24 Mpixels**
  - **Is there a business case to support ‘t**
- **Bayer** might give you what you want, but telling people that 8Mpix gives 4k-scanning is just violating the laws of physics (Nyquist)
  - Accept that 8Mpix is just Full HDTV res. and accept that 4k is just up sampled 2k
- The **pseudo Bayer** pattern in diagonal stripes are even worse because of the diagonal asymmetry in the pattern
- Genesis did the correct thing -(from a aliasing point of view)- using **column color filters**
  - The sample grid for R,G and B is the same
  - NOTE: If one calls 8Mpix Bayer 4k-scanning then they are entitled to 6k
- Its for the above reasons that **2/3” will perform** well in comparison with the 35mm 8Mpix-12Mpix, the only exception is depth of field
  - NOTE: Shallow depth of field is like having a blur filter in the optical path and yes these images can be upres. to 4k but the sharpness is not there.

Being Challenged

- **Imagers** behave
  - Graceful near black but have a
  - ***hard clip for highlights***

- **Film** continues to respond to changing light intensity even where it concerns highlights

- **The challenge**
  - increase the latitude of imagers to come closer to or beyond film

Acknowledgement

CMOS-Imager and the Images shot

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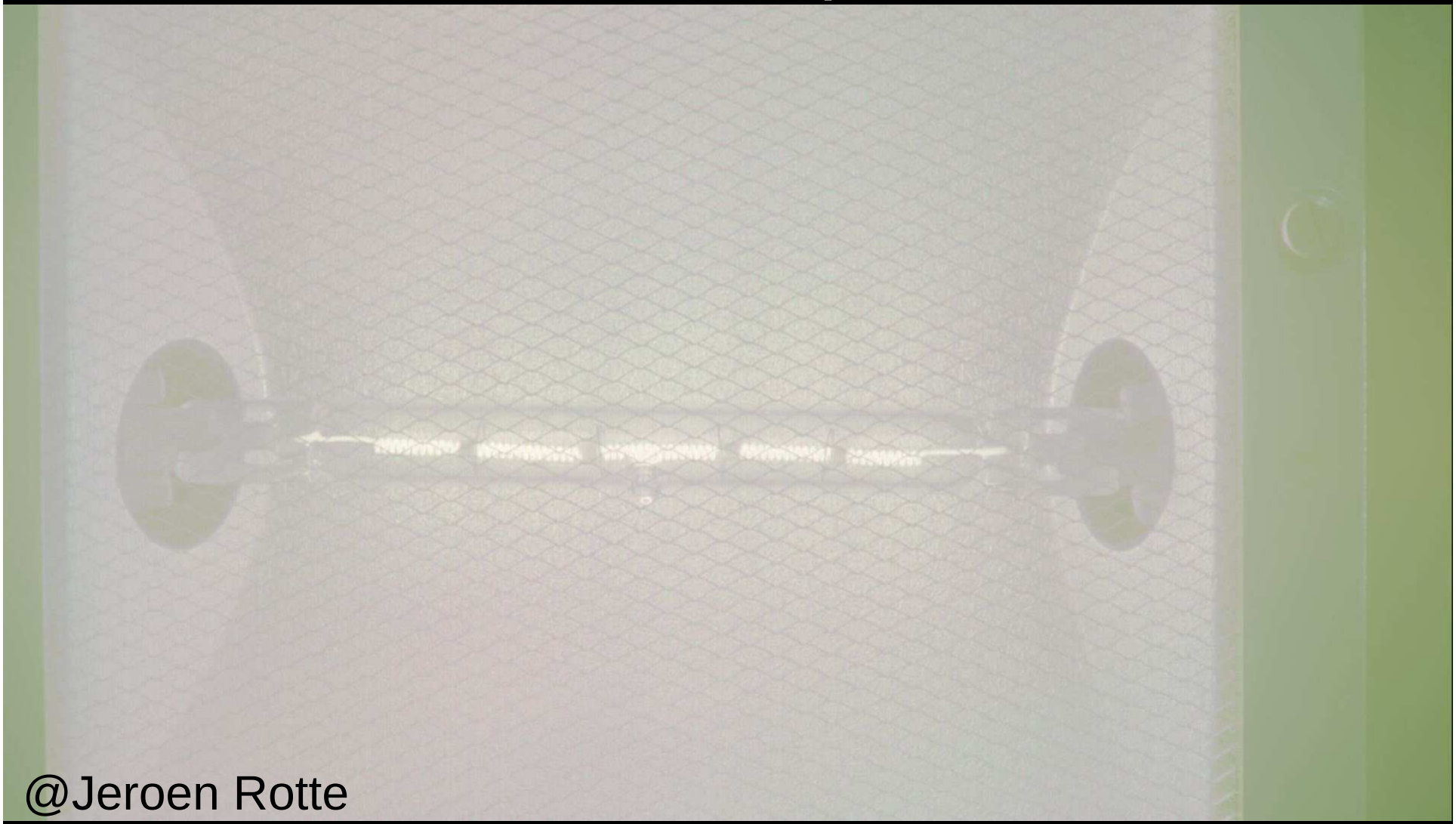
  - Peter Centen, Jeroen Rotte
- Thomson Silicon Components
  - Steffen Lehr, Sabine Roth

Measurement of the Transfercurve

- Thomson Research and Innovation Signal Acquisition and Processing
  - Andreas Hille, Wolfgang Endress

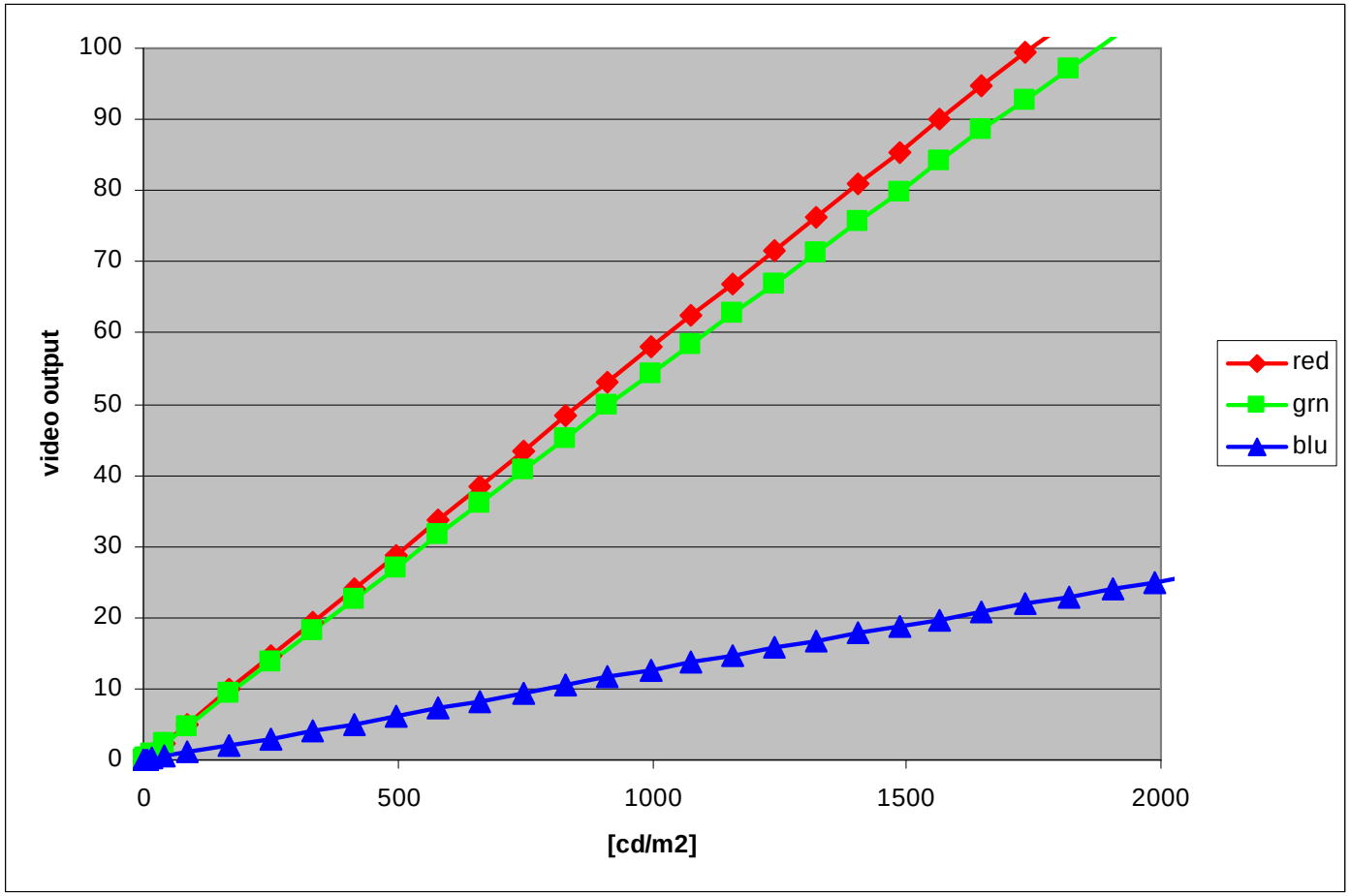
Experimental:
Shot with the son of Viper



@Jeroen Rotte


Cruesli
HONING & AMANDEL
Cruesli
4 NOTEN
Cruesli
APPEL & ROZIJN
Cruesli
CRANBERRY & AARDBEI
VERNIEUWD
Cruesli
PURE CHOCOLADE
Sun
All-in-1
Dubbel Frisss
CamAlign - ChromaDuMonde
SRW - CDM 28R - v8.3 - SN SRW7372364
LA TULIPE
Robijn
1 cd/m^2
500 cd/m^2
1,000,000 cd/m^2

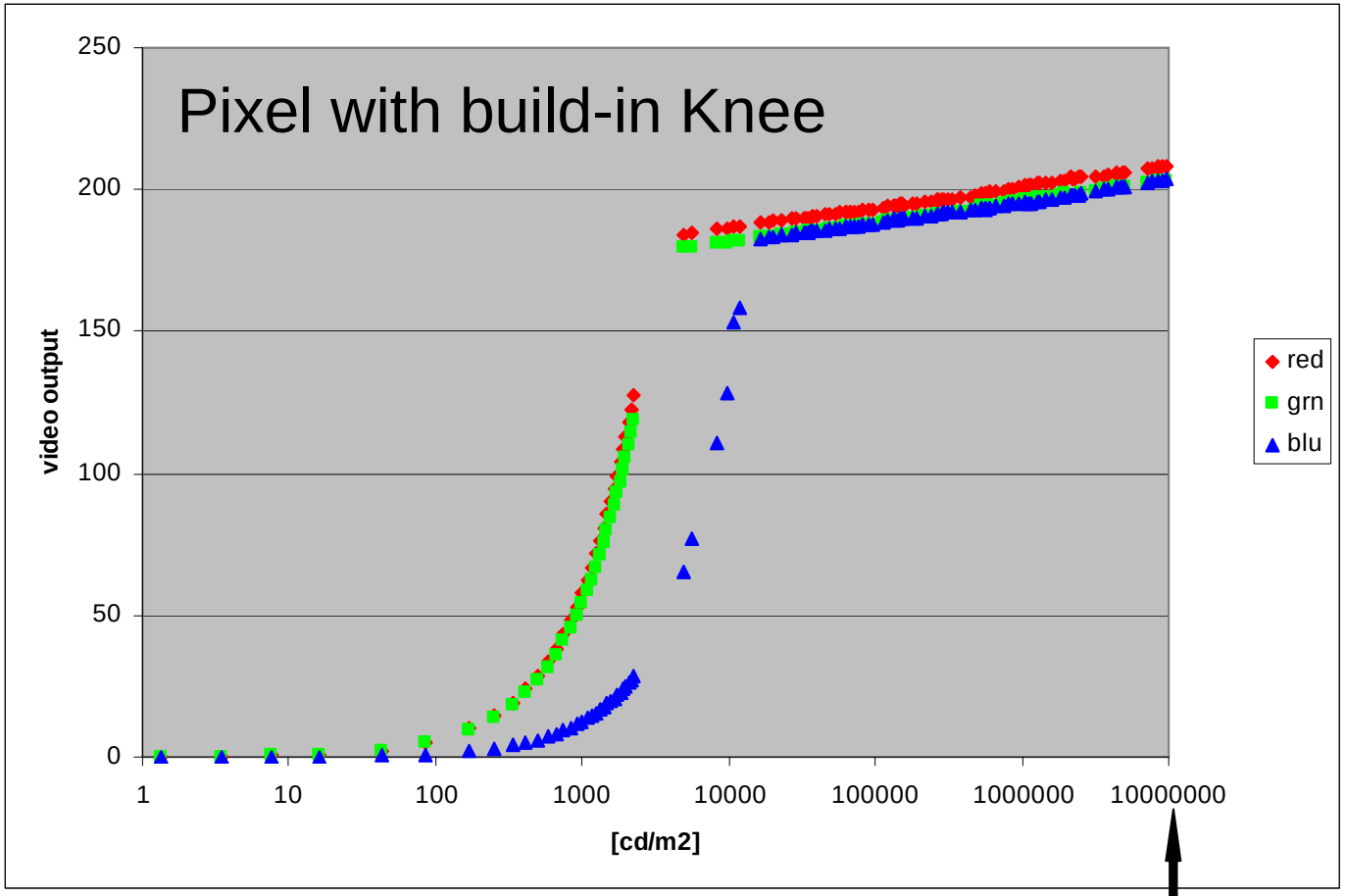
Transfercurve 1



Linear scale ➔

Linear scale ➔

Transfercurve 2

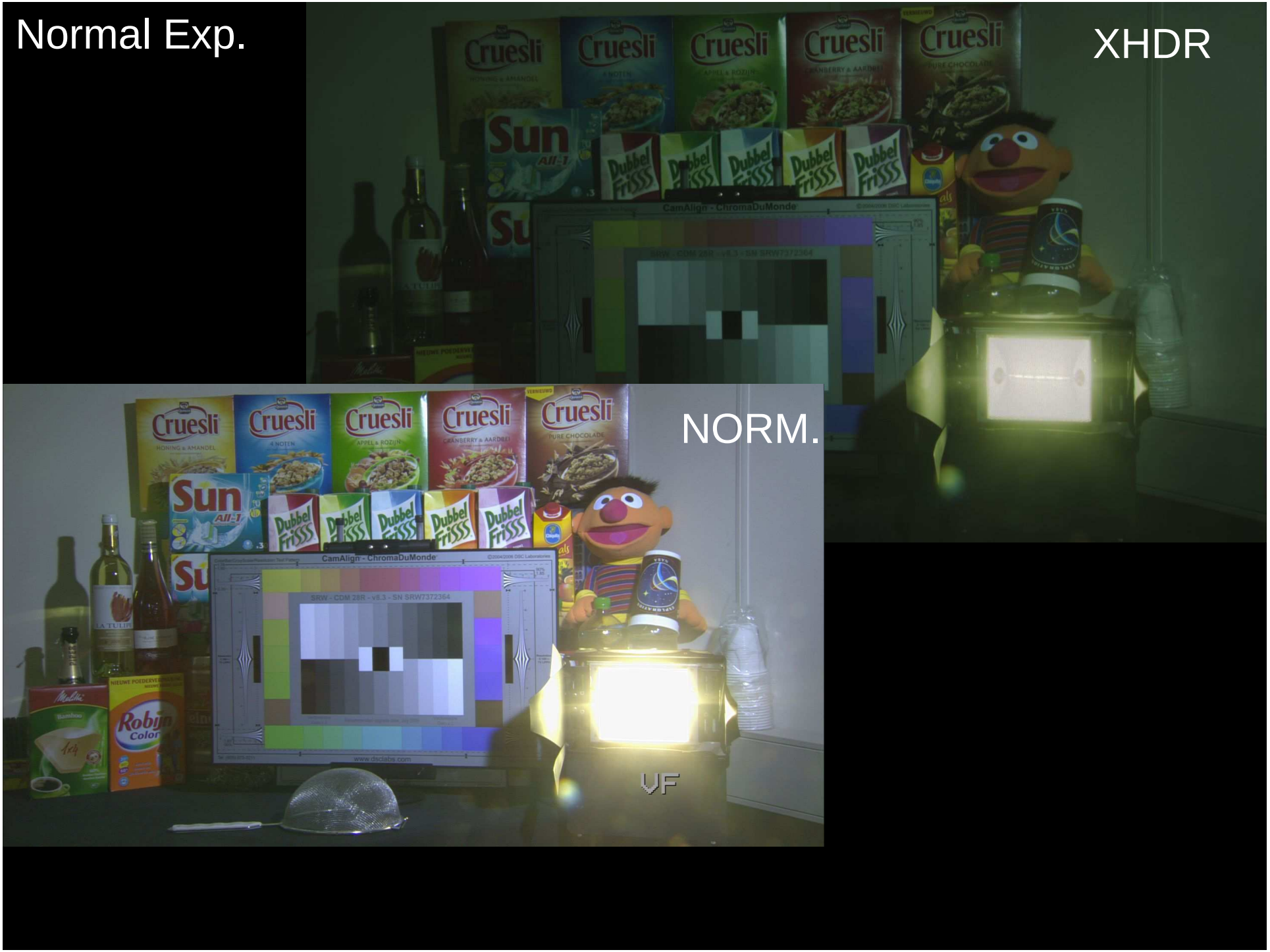


Linear scale ➔

Log scale➔

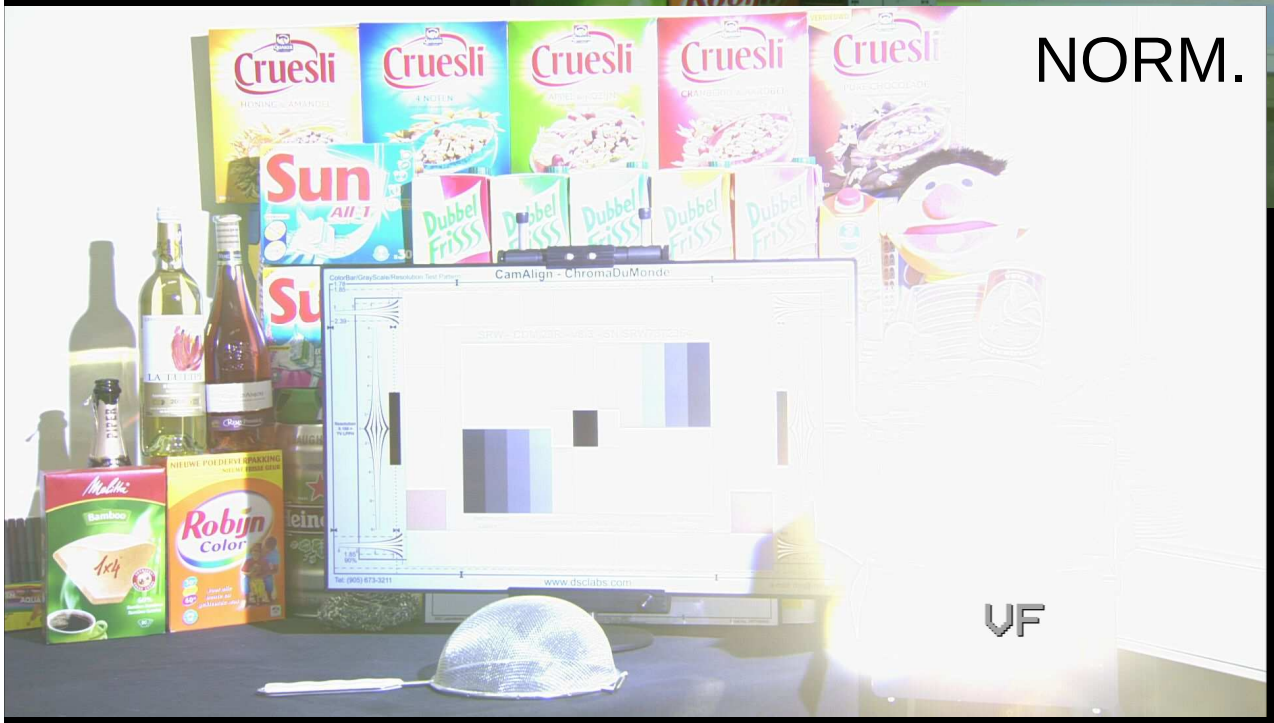
10M cd/m^2

Normal Exp.



Wide open lens

XHDR



NORM.

Conclusion

- In discussing 35mm single imager cameras or full HDTV cameras with 3x2/3”-imagers or 4k or 2k
  - When you like RED, GENESIS, ORIGIN, D20, F23, VIPER, FILM, use it …..there is no arguing against emotions
  - But you will find out that upres. 2/3” from a full HDTV camera performs just as well as Bayer with 4k on a row
  - In the end the proof of the pudding is in the eating…
  - Continuation of development and usage by customers depends on the underlying business case … for both
- The hard-clip in imagers is removed
  - Is it useful?
  - How to map the signal levels?