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Measurement Tools

The Next Generation

Projector Installation – The Usual Order

- Physically install projector; Attach to network
- Set First Focus
- Adjust Convergence, center first, then corners
- Adjust Luminance, center first, then corners, then...
- Calibrate Colors
- Set Final Focus, Save Setup, Repeat for Scope, etc.

Total Time: A Few Hours…

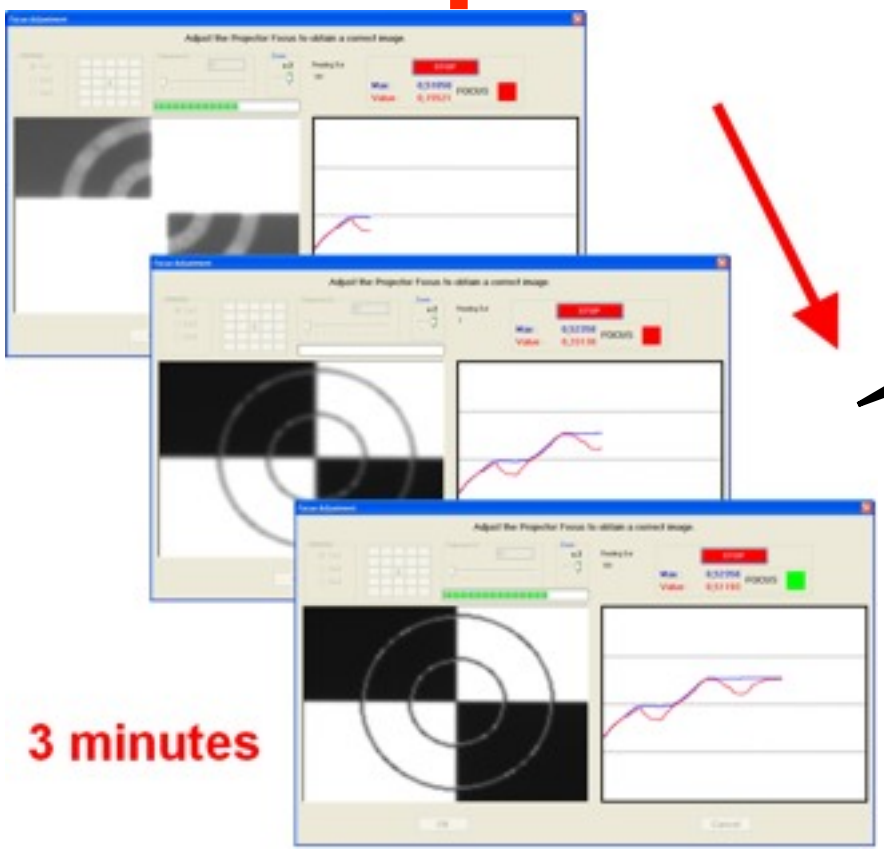
Quality Control – The Usual Order

- Check Color Gamut, then Color Uniformity
- Check Luminance, then Luminance Uniformity
- Check Convergence
- Check Focus
- Check Contrast (Sequential and Intra-frame)
- Repeat for Scope, etc.

Total Time: A Few Hours…

What needs to be solved?

Perhaps a computer...



3 minutes

Convergence;
Much simpler isn't it?

And
for all screen areas!

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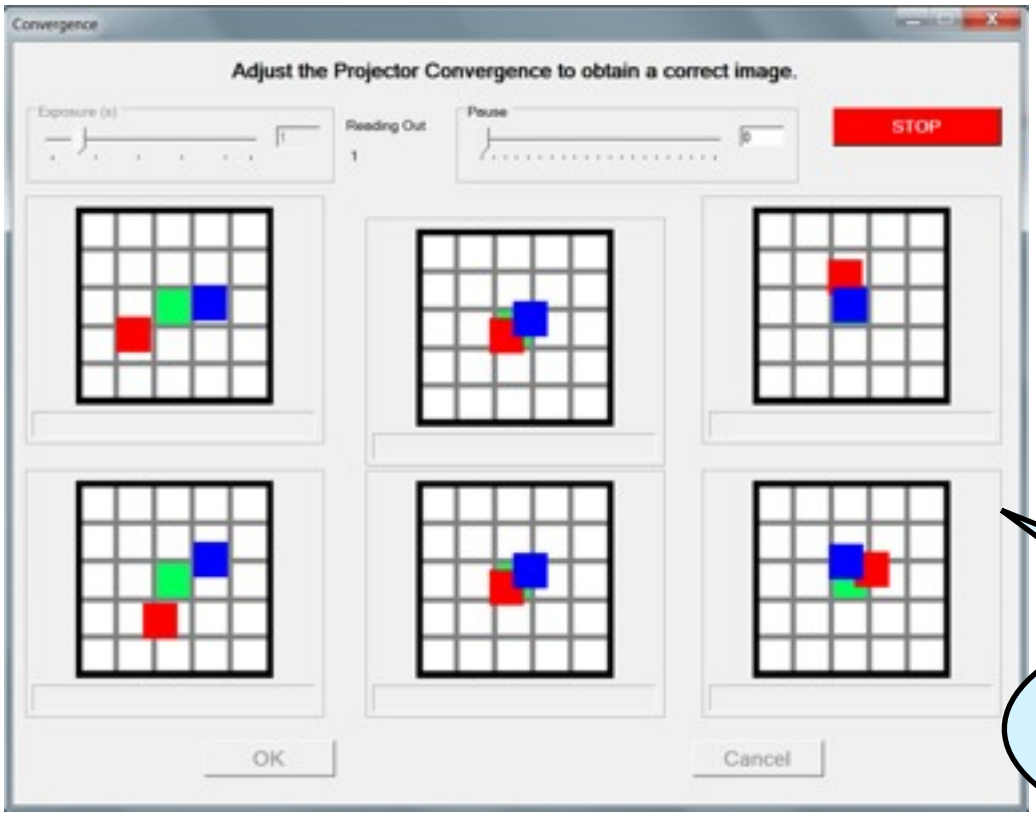
...that shows each pixel...



In
real time!

For
center, corners and
subtitles location!

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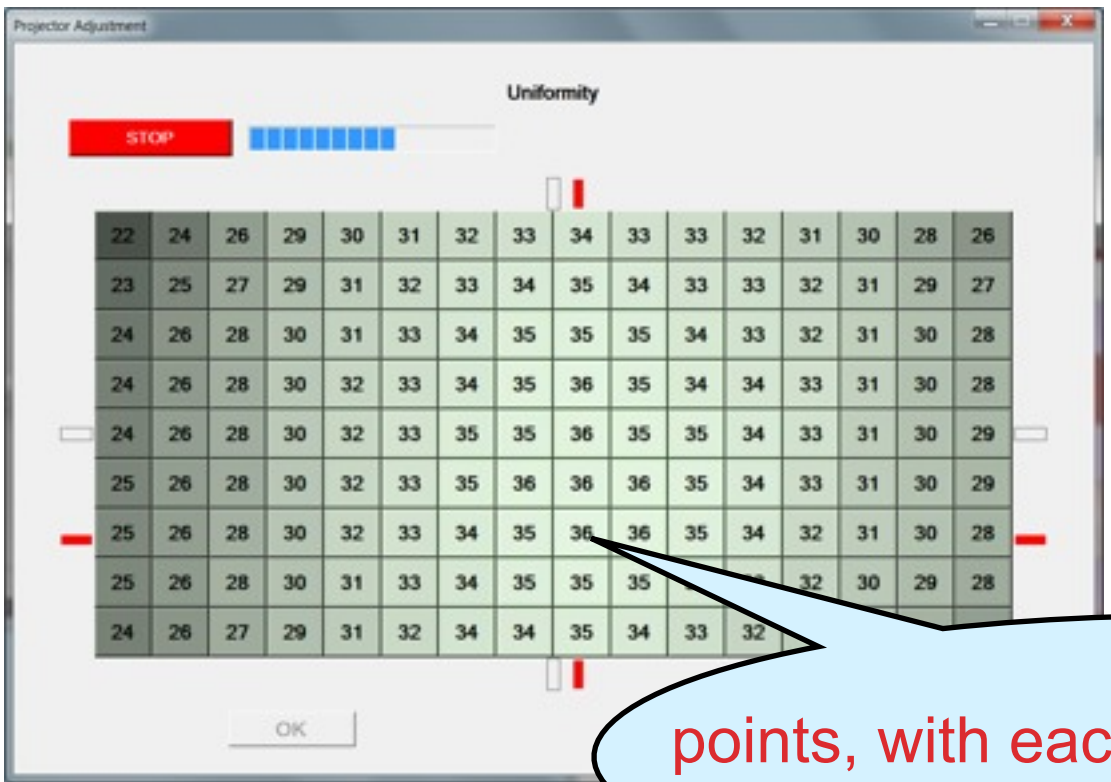
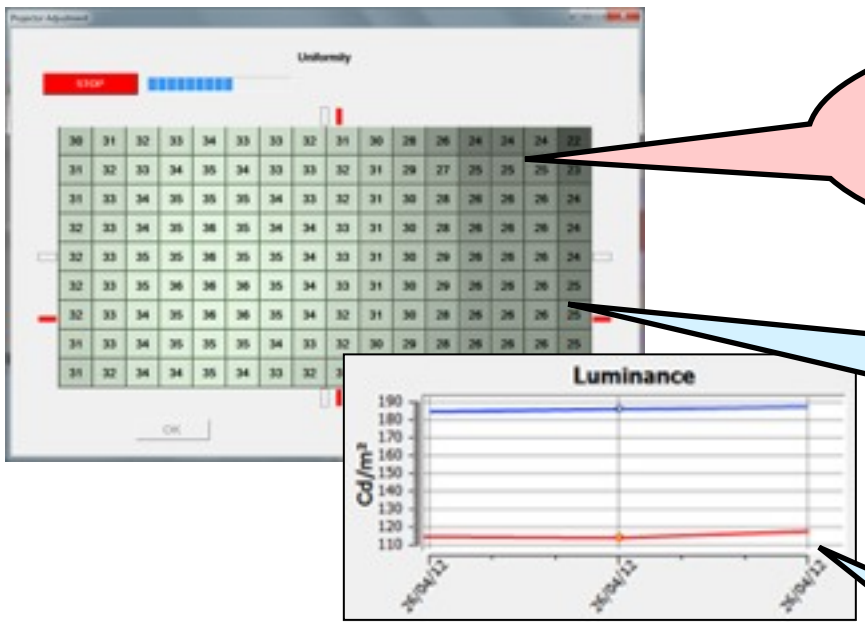
...that shows uniformity?



In real time!

144 points, with each Luminance value in candela and foot-Lambert!

...set a correct alignment?

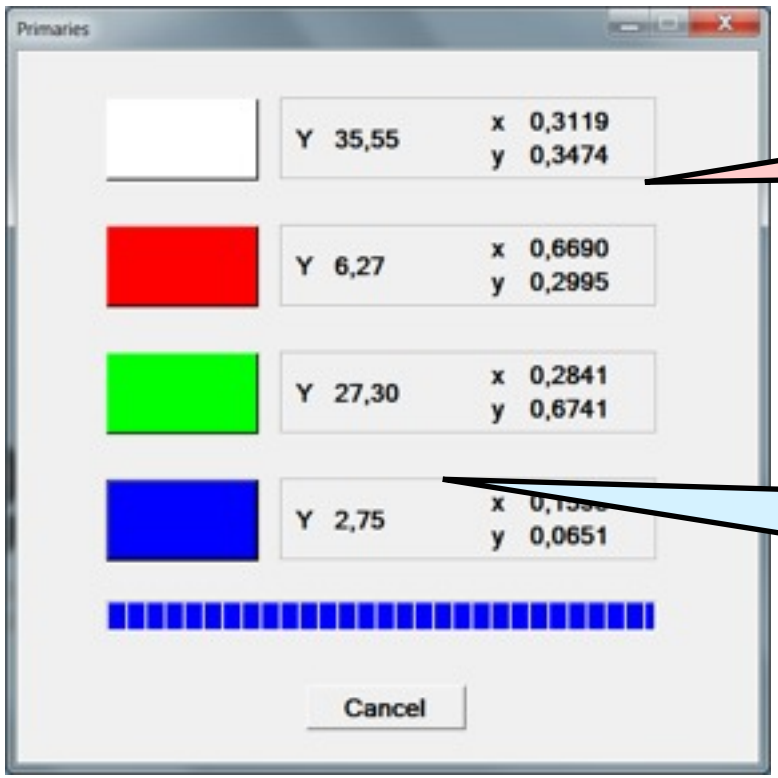


We've
a big problem with lamp explosion!

Set a correct
light alignment and avoid reflections and overheating inside the projector…

And
follow the life curve!

Create a MCGD file?



For
all Color Gamut!

With
a color accuracy of
0.002 for xy!

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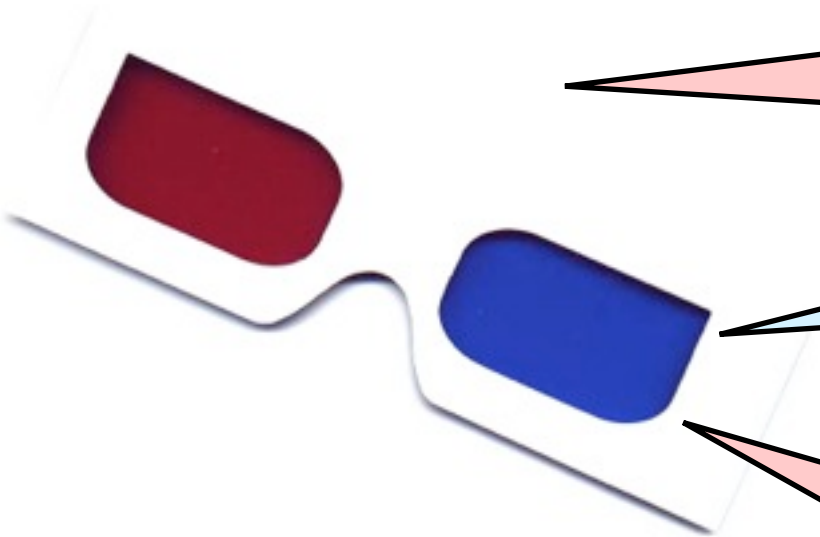
... for your 3D system?



Which kind of glasses do you use?

This one...

Fine~! QALIF will give you the best projector setting. Without measuring the 3D glasses!

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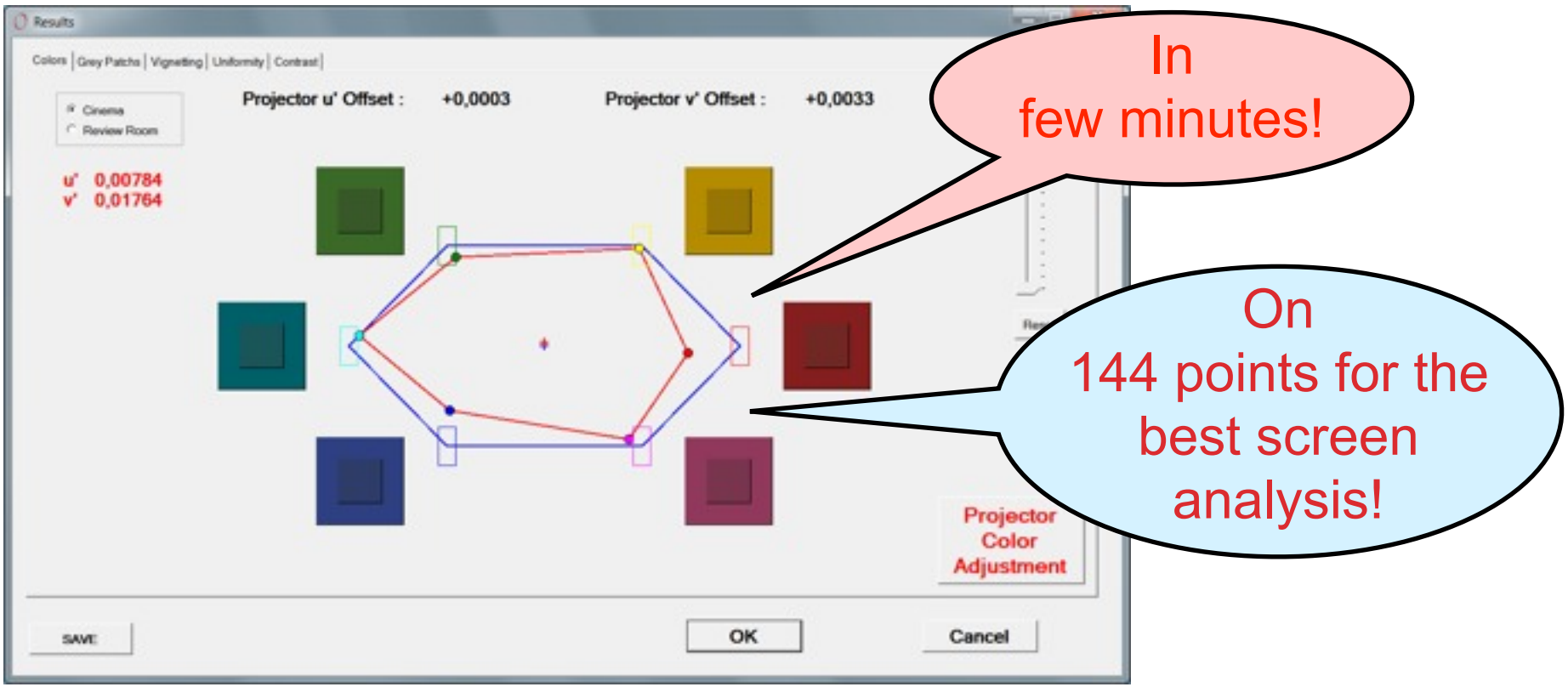
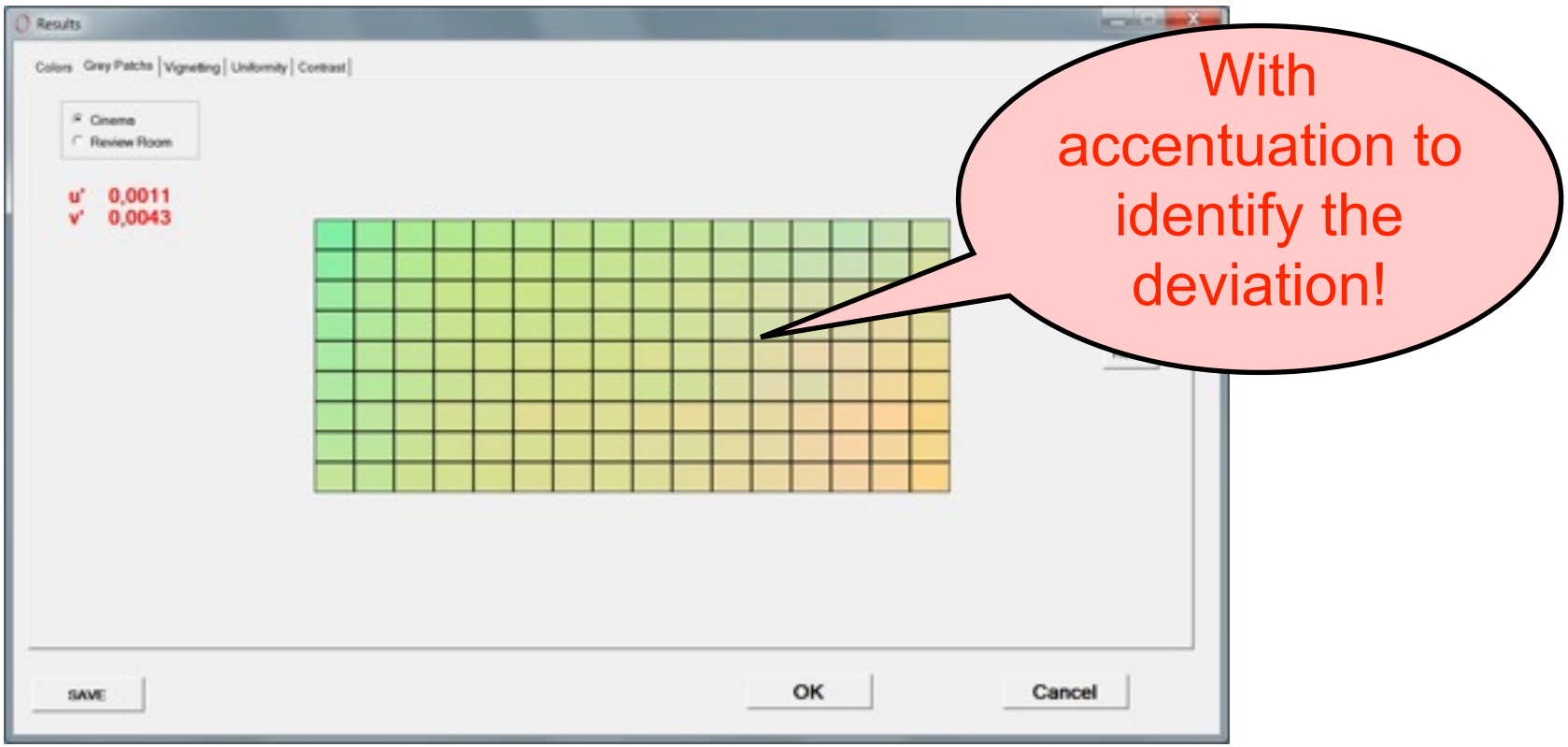
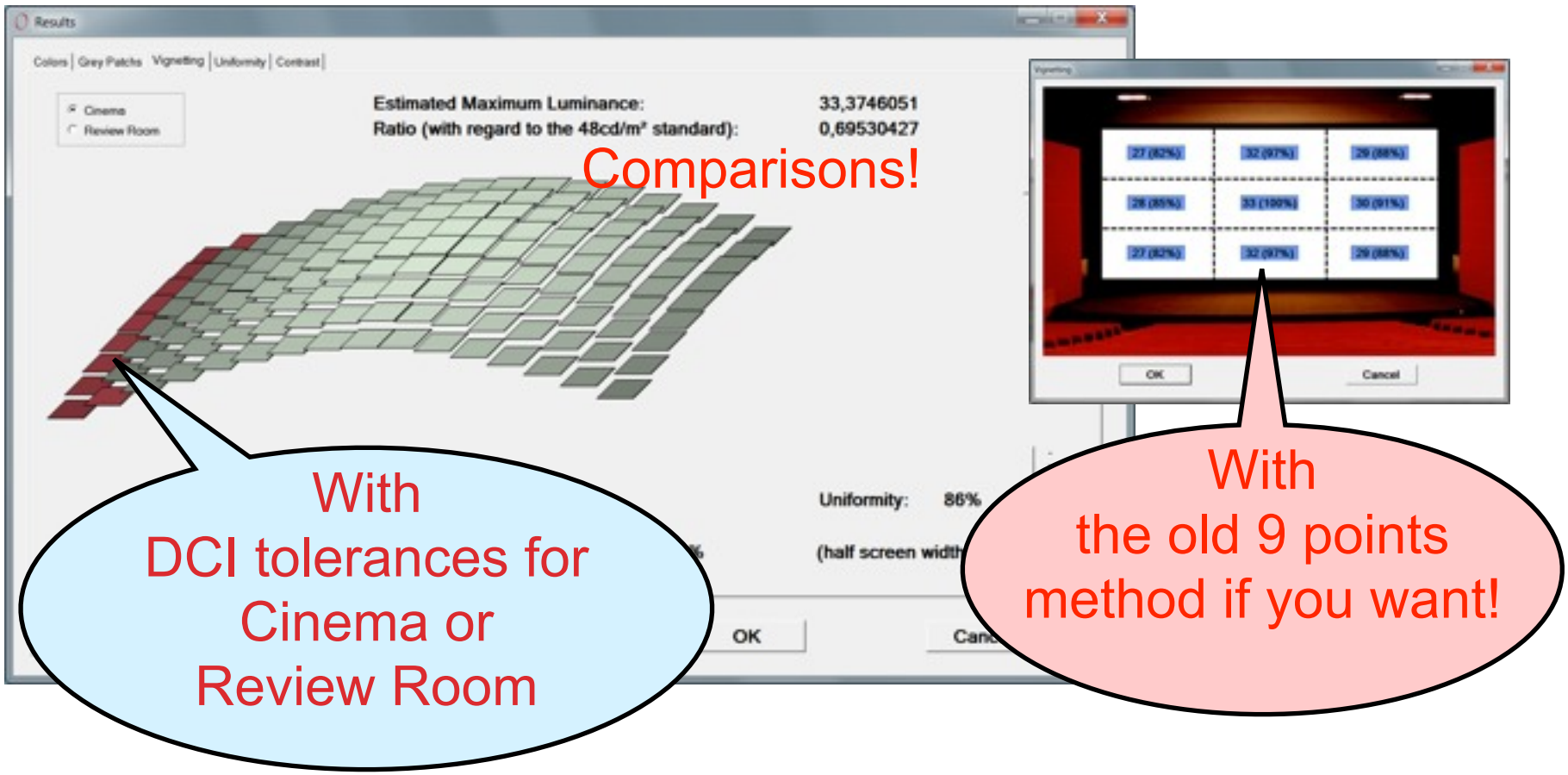
...show color deviation?



...shows Color Uniformity?



...3D Vignetting/Luminance



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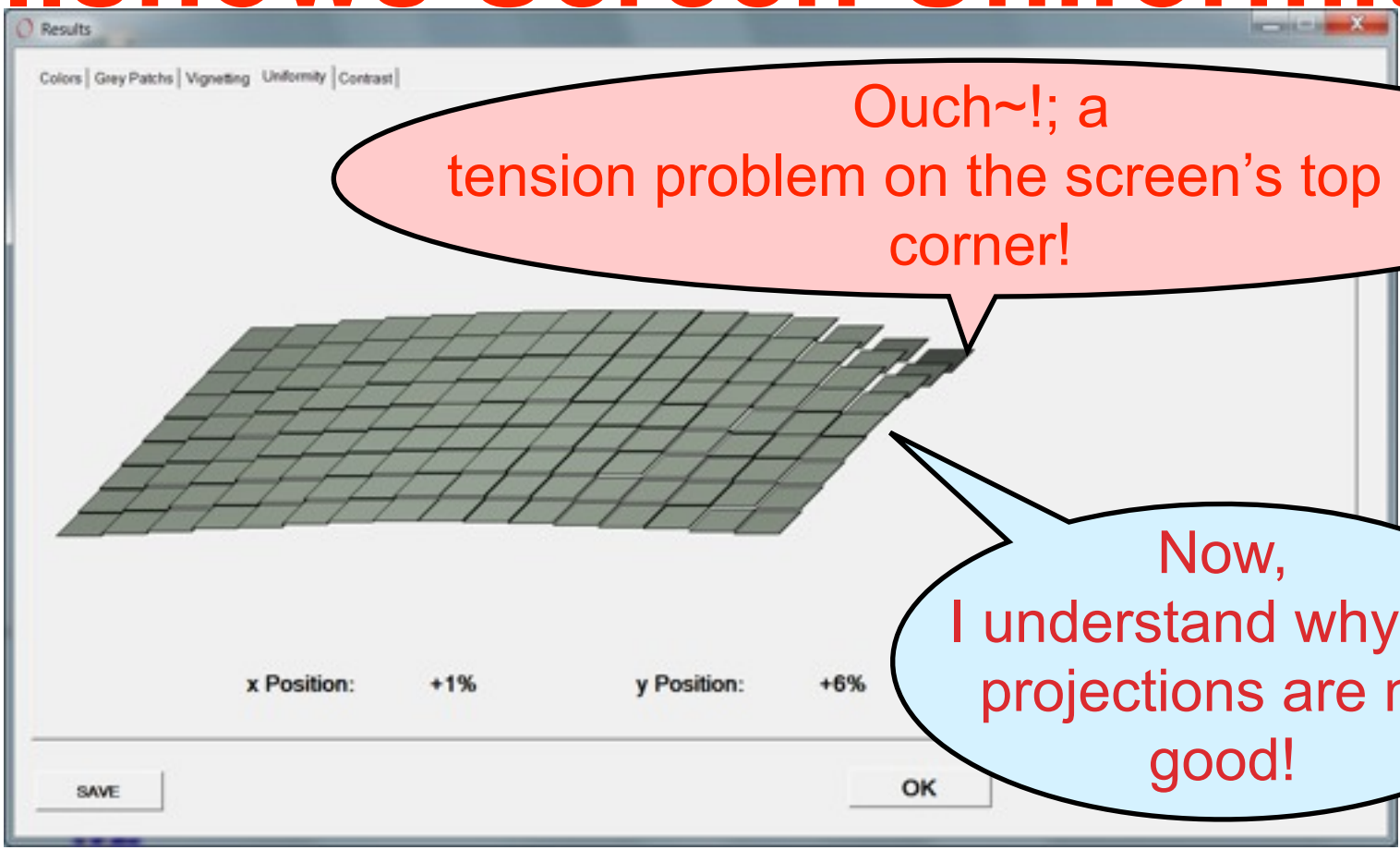
...shows Screen Uniformity



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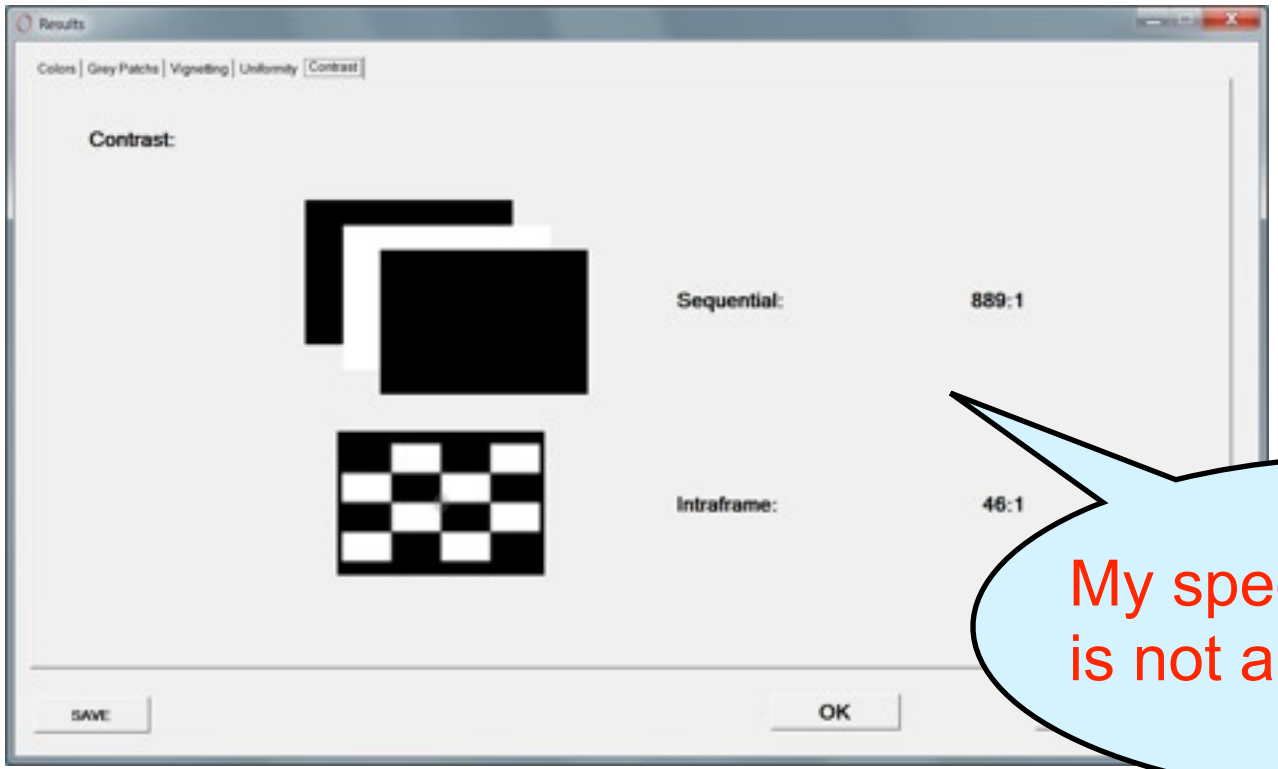
Contrast; Sequential & Intra-frame



Woah!
My spectrocolorimeter is not able to measure that!

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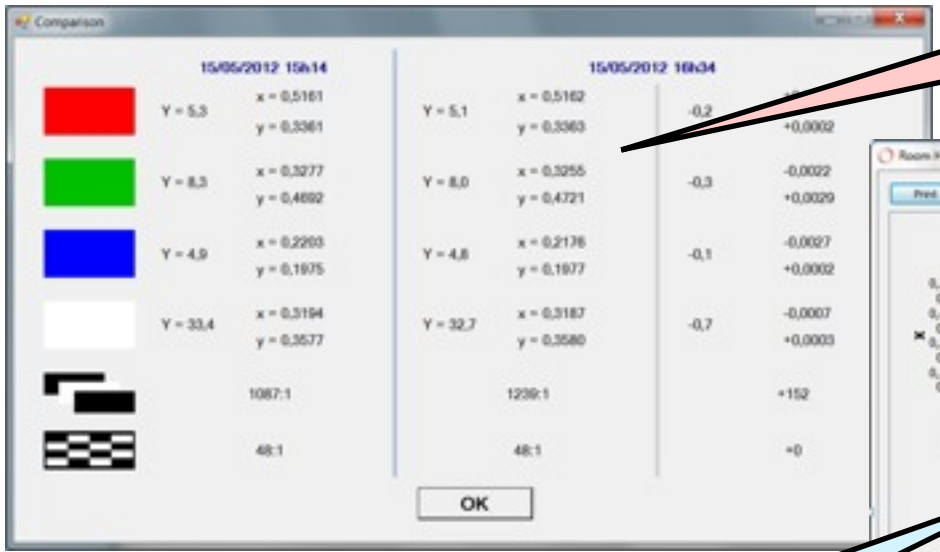
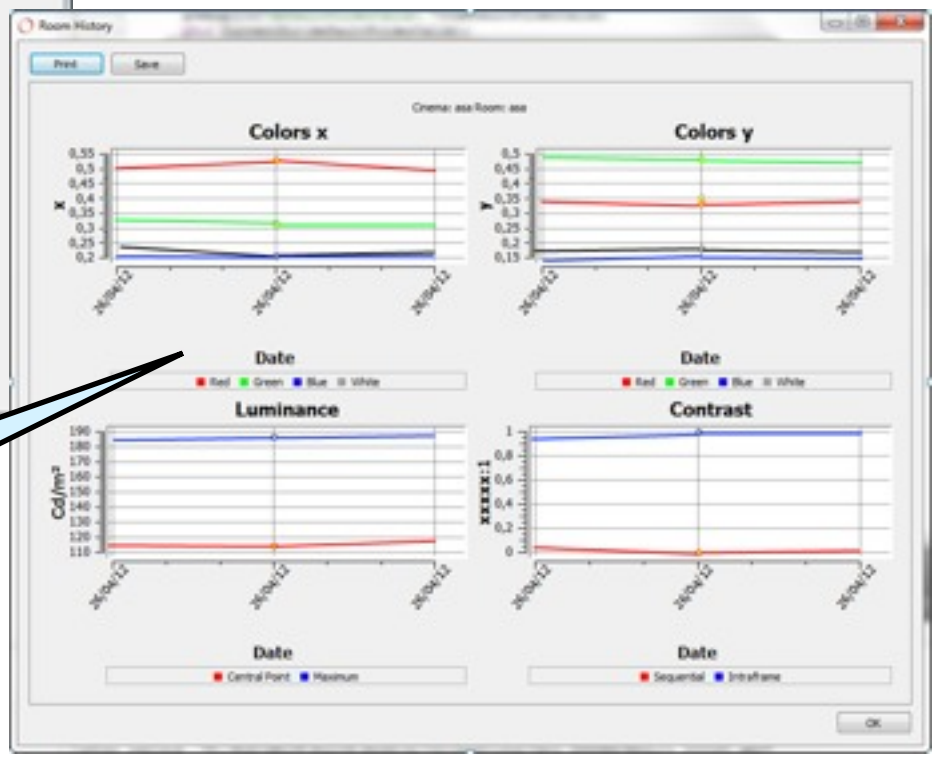
History!

Comparisons!





Deviation curves!

Would that help?

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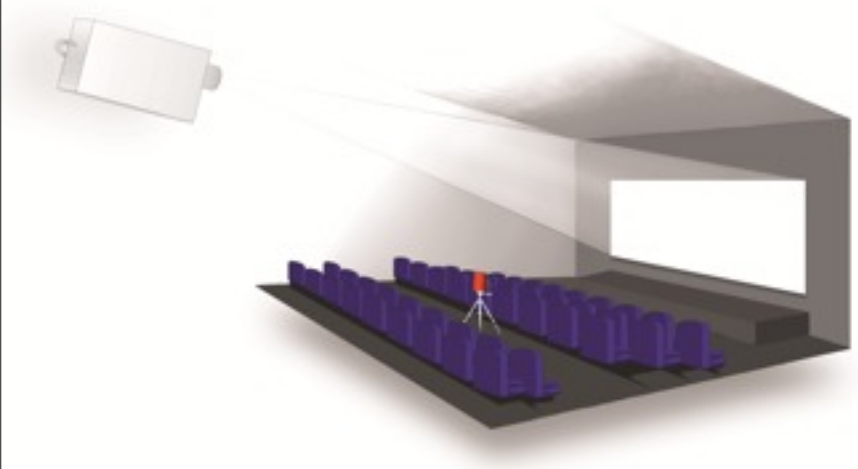
Fortunately it is now possible!



Introducing the Highlands Technologies "QALIF" system!

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Remote Access & Control

VNC

Wifi Access

Embedded software

Benefits

- Simultaneous analysis of the entire screen area
  - 144 points or 9 points
- Best possible projector settings
  - for your 2D system
  - for your 3D system
- Every setting accomplished by a single operator, *without looking at the screen*

Benefits

- Dedicated tools
  - each best suiting each professional need
- Interactive visual helpers
  - reports
  - comparisons
  - evolution curves
- Possibility to save all your rooms characteristics
  - IP address, dimensions, bulb IDs, etc.

Benefits

- Remote VPN Access
  - Mobile or fixed
  - WiFi or ethernet
  - FTP and onboard SD memory backups
- Automatic sequences from playlists
  - using Doremi and a growing list of servers
- Automatic control of projectors
  - using Doremi and a growing list of servers

Benefits

- Projection defects immediately highlighted
- Real Time view of set up characteristics
- A set-up or complete analysis of a complete projection system in a very few minutes

Measurements

- Colors
  - Primaries (W-RGB)
  - Macbeth
- Luminance
  - Levels
  - Uniformity
- Convergence

Measurements

- Contrast
  - Intra-frame
  - Sequential
- All mandatory measures
  - displayed in or out the tolerances
    - cinema or review room
- Time:
  - 5 minutes in fixed installation use
  - 20 minutes in mobile use

Automatic settings

- Focus
  - Intra-frame
  - Sequential
- 2D / 3D / Dual lamp brightness
- 2D / 3D colors
- Dual projector alignment

Time : 15 minutes in fixed / 30 minutes in mobile use

Qalif Scenarios

- Fully automatic scenario:
  - Projector channel selection
  - Adjust Focus
  - Adjust Brightness
  - Adjust Colors
  - Save these settings on the selected channel
  - Set all channels on this way
    Flat, Scope, 2D/3D, 2K/4K…
  - Alignment if Dual projectors
  - Give a report to monitor all these settings

Scenarios; Convergence Uniformity

~Without Qalif:

- 1 operator on the projector
- 1 operator near the screen for guideline
- Difficult communication
  for only one spot on screen at a time
- Confirmation with field glasses
- Adjust Colors
- Save these settings on the selected channel
- Repeat this method on all channels
  Flat, Scope, 2D/3D, 2K/4K…
- Re-Do Alignment if Dual projectors
- Give a report to monitor all these settings
- Repeat for all setups

Time : according to the projector defects

Scenarios; Convergence Uniformity

~*with* Qalif:

- Only 1 operator required at the projector
  - immediate analysis of the whole screen.
- Qalif triggers Playlist of DCP test patterns
- Qalif
  - Captures
  - Analyses
  - Prepares Reports

Time : Minutes

Finishing Touches

- History of all measures
  - site / room / date / hour
- Wireless remote control access
  - touchpad, laptop, networked device
- Evolution curves of all parameters
- Automatic update
- Suitable for network use
- Automatic FTP, USB and SD Card backups

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Thanks for your attention

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