Optimizing Export Image Quality

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Optimizing Export Image Quality

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- What is Grayscale Standard Display Function?
- Display Systems
- Solution - Export IQ Optimization
- Proposal - Workflow Enhancement
- How Export fits into the architecture
- An Analogy and Examples
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Potential to Provide better Patient Care

Consistent IQ across review stations

Improves the diagnostic Confidence
What is Grayscale Standard Display Function?

When exporting with GSDF; The image is exported with the promise that it will be displayed on a **Standard Display**
The final image processing steps take place in the **Standard Display**

What if there is no **Standard Display Available**?
GSDF- Some Assembly required

Would you use your new table without unpacking it?
It would work?
Display Systems can be categorized into Standard Displays (GSDF-Calibrated) and General Displays (Non-GSDF-Calibrated).

It is very rare that the display systems are Standard Displays. Especially in the value segment market, most of the review station monitors are General Displays.

Customers demand for an alternative solution from vendors.
“Export Image Quality Optimization” provides:

- Customized LUT for a wide range of brightness luminance to support the Generic Displays.

- A wizard to guide the selection of appropriate LUT for the destination.
Proposal - Workflow Enhancement

• GSDF Calibrated review station.

Start

Set to use GSDF compensation.

Exit
Non GSDF Calibrated review station

Start

Regenerate for each LUT luminance

Create a new study + Add regenerated images.

Export the study to Review station.

Set the export compensation.

Exit

Look for the best viewed image

Review station.
Pictorial Representation

Acquisition Modality

GSDF Image

Custom LUT applied Image

Review Stations

GSDF Calibrated

Non-GSDF Calibrated

Non-GSDF Calibrated
How Export fits into the architecture:

- When exporting with GSDF (The Default); The image is exported “raw” without the final processing step.
- GSDF = Some assembly required!!!
An Analogy

Viewing a Raw GSDF image is like a car with just the primer coat

Same car viewed with a “Standard Display” or an appropriate export LUT is like applying the final coat of paint
Raw GSDF images are too contrasty, over gained, and appear grainy

With the appropriate LUT the image is smoother and appears like it did on the system
A substitute “Standard Display”

Provided by a User selected Export LUT + Generic Display

Export LUT + a Generic Display approximates a “Standard Display”
Benefits

- Export LUT + a Generic Display approximates a “Standard Display”

- Supports GSDF for a Standard Display.

- It is a one time task usually done by a doctor with the help of a Field Service Engineer (FSE). Future exports will use the selected settings.

- There need to be an alternative setting available to facilitate this LUT selection at any point of time.
Conclusion

- Even though the DICOM GSDF continues to address the issues related to differences in display characteristics, there are situations where a different solution may be needed.

- The proposed solution enhances the DICOM GSDF by addition of a wide range of LUTs.

- This helps in optimizing the exported image quality and hence provides the potential for better patient care.
http://dicom.nema.org/
Thank you for your attention !