

## Imaging Performance Results of Quartz A0 scans with New Software Modification

by

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Philippe Bayle of I2S recently provided candidate image scans of the Quartz A0 scanner on a factory unit. These scans are from a new software modification that is intended to improve the resolution results at A0 scan sizes in order to meet the FADGI 2-star performance levels on the recently installed unit at Toledo-Lucas County Public Library (TLCPL). This software modification limits the field of view to 840 mm in the short dimension of the A0 format. This is within the A0 size specification.

The results from these scans showed that the luminance resolution performance over the entire A0 field-of-view did indeed meet the FADGI 2-star levels and were improvements over the previous scans without resorting to high levels of sharpening. The results' summaries for the 10% and 50% SFR responses, the performance area that failed previously, are shown in Fig.1 and Fig. 2. All plot bars need to be higher than the lower red horizontal line in order to meet the FADGI 2 star compliance level.

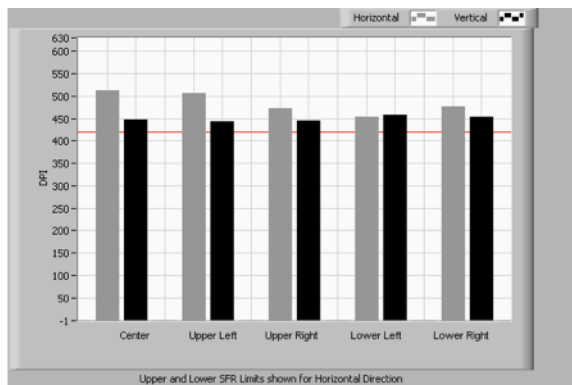


Fig. 1 – 10% SFR response

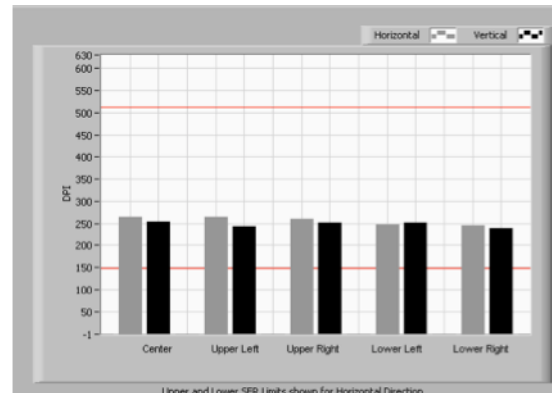


Fig. 2 – 50% SFR response

Testing remains to verify these results will be achieved in the currently installed unit at TLCPL

Supporting observations of these new scans compared to the previous ones (without the software mod.) with regard to the tone transfer function are offered below. Since the tone transfer function is such an important component for good color encoding accuracy some exceptional behaviors of the current unit at TLCPL are provided.

**Tone transfer curve** - Notably, the tone transfer (OECF) response of the new scan data complied very well with a gamma 2.2 response. Achieving a similar well-behaved response with the current field installed device at TLCPL last month was never accomplished. I attempted to work with the install technician to achieve a gamma-like tone response but found it very frustrating using the interface options. I recommend that a detailed calibration procedure be provided to the customer to achieve similar tone responses shown in this past scan. This procedure should include calibration target types, aim points, and user interface settings and be tested to confirm that a similar tone response can be achieved by the current device operators without exhaustive tweaking.

A similar, gamma 2.2 response, to the one from the new scan shown in the left of Fig. 3, should be achieved. A typical one from the initial evaluation on May 30 is shown on the right of Fig. 3. Clearly, the original one on the right is underexposed despite following the calibration procedures of the install technician. Attempts to increase the exposure through calibration techniques known to the technician only served to clip the highlight data.

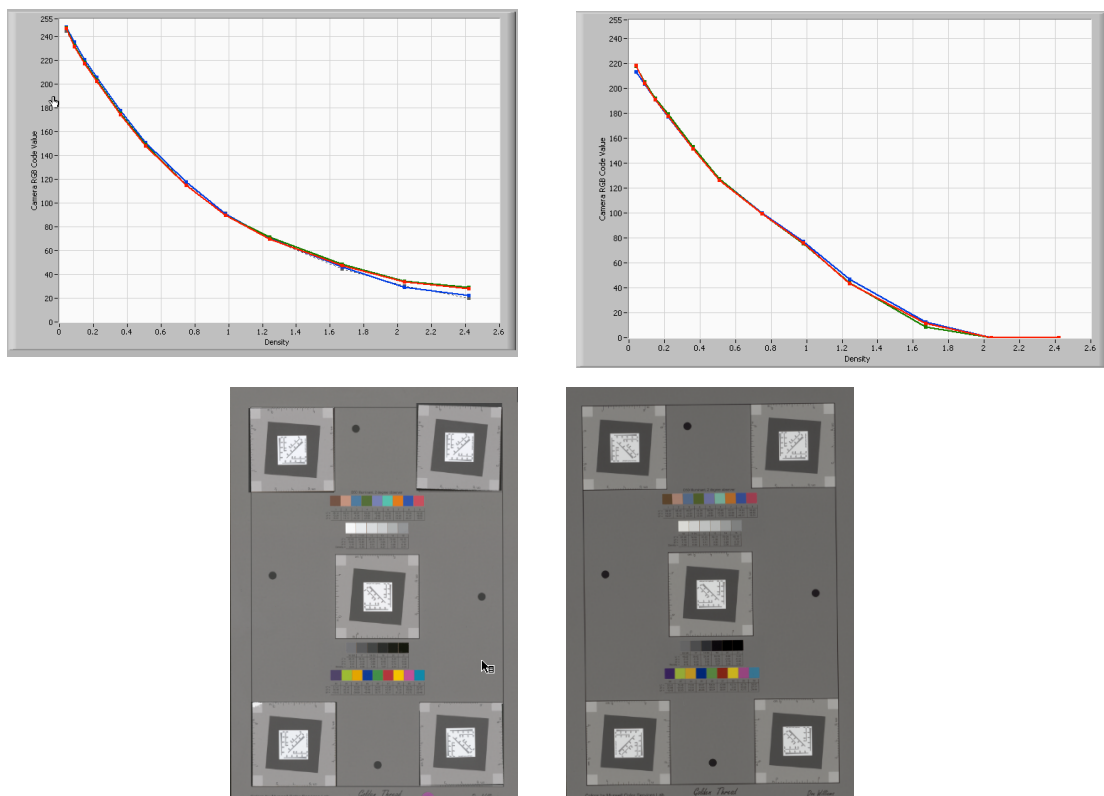


Fig. 3: Tone transfer responses for revised (left) and original (right) captures from Quartz A0