



By Alan Lamshead

Standards for Displays

From the 1930s until the end of the 20th century, cathode ray tube (CRT) technology was the platform on which all television displays were based. CRT technology evolved over time creating bigger, and better displays. Looking through early copies of the *Journal*, I found several interesting articles that made statements such as “Ultra-short-wave television transmission with pick-ups using electron scanning, together with cathode-ray tube reception, are regarded as likely to be acceptable for television broadcasting to the public.”¹ Indeed, over the next seven decades many standards and recommended practices were written, and revised, creating a well-defined ecosystem for television production, using CRT displays.

Over the past ten years, CRT displays have rapidly given way to fixed pixel matrix (FPM) displays of varying technologies—plasma, (LCD) liquid crystal display, and OLED (organic light-emitting diode), to name a few. Each of these new technologies brings with it many desirable features, such as progressive image display, wider possible color display, increased display brightness, lower power consumption, etc., however the new technologies also have their challenges. One of those challenges is how to transition our familiar ecosystem to take advantage of the new opportunities, while still retaining the benefits of CRTs we have all come to appreciate.

It is this challenge that brings us to the necessity of developing new standards for the new display technologies. SMPTE has been actively working on developing an entire suite of new standards for these FPM displays in the 10E Technology Committee on Essence. This Reference Display Drafting Group’s mandate is to define technical parameters for displays and their viewing environment to enable program interchange in professional HDTV applications. The first two foundational documents were published in 2014. The first is ST 2080-1: *Reference White Luminance Level and Chromaticity for HDTV*. The reference white level and chromaticity defined in this standard are intended for critical viewing in a controlled environment. The second is RP 2080-2: *Measurement and Calibration Procedure for HDTV Display Luminance Levels and Chromaticity*. This Recommended Practice specifies methods to be used for routine measurements and calibration of absolute luminance levels and white point chromaticity produced by HDTV Displays. This group is also developing a standard for the critical viewing environment and an Engineering Guideline to provide context and background to the other documents.

Alfred N. Goldsmith, “Television and Motion Pictures,” *JSMPE*, Vol. 25 (1): 37-45, July 1935.

Upcoming Standards Meetings

7-10 July 2015

Randwick College

Sydney, New South Wales, Australia

16-20 September 2015

Paris, France (Immediately following IBC)

7-11 December 2015

Turner Entertainment

Atlanta, Georgia, USA