

**Introducing
Rec.2020 Projectors
for Entertainment Spaces**

1 Executive Summary

Rec.2020 and other wide color gamut standards cover a significantly broader range of colors than the conventional Rec.709 standard. This expanded gamut enables the reproduction of real-world colors as well as highly saturated hues. Rec.2020 can now render the vivid neons, deep greens, reds, cyans, and other colors previously impossible to reproduce on screen due to display limitations.

While many display devices support the Rec.2020 signal input, even professional monitors used in content production are typically limited to the DCI-P3 color gamut. Rec.2020 production will be important in the future but currently adds time and cost. Even without native Rec.2020 content, Rec.2020-capable projectors can make Rec.709 look noticeably better and resist desaturation from ambient light or colored surfaces.

As the new core technology from MEVIX, VIVID PRIME™ achieves the smooth gradation provided by both Rec.709 and Rec.2020-class wide color gamuts through advanced light-source architecture and precise light control. The system adapts dynamically to the input signal by combining RGB laser light sources with a phosphor wheel:

- Rec.709 optimizes color reproduction to maintain natural gradation within the conventional gamut.
- Rec.2020 fully utilizes its a broader color space to deliver vivid, highly accurate color reproduction.

Both standards maintain natural tonal gradation and high color fidelity. Moreover, VIVID PRIME™ suppresses the rainbow effect to provide a comfortable viewing environment while enhancing the overall viewing experience.

2 Importance of Color Reproduction for Immersive Experiences

The entertainment sector is rapidly adopting digital museums, attractions, and other immersive experiences. Projectors are highly effective tools in these immersive environments due to the flexibility in staging that can heighten immersion.

Typically, these experiences increase the size of the screens to enhance immersion through a larger field of vision. 4K and 8K resolutions provide greater image clarity at close distances and can convey the fine details that have become key contributors to successful immersive experiences.

Today, large screens and high resolution are a given. Going forward, the color reproduction quality will most likely become a deciding factor in how to shape immersive experiences. Color is not merely decorative but also plays a critical role in gaining emotional engagement and narrative immersion. Subtle discrepancies between real-world colors and displayed images can diminish suspension of disbelief and disrupt immersive feel.

Rec.2020 is coming under the spotlight even more as the role of color becomes more central because the standard can handle a much wider color gamut than before.

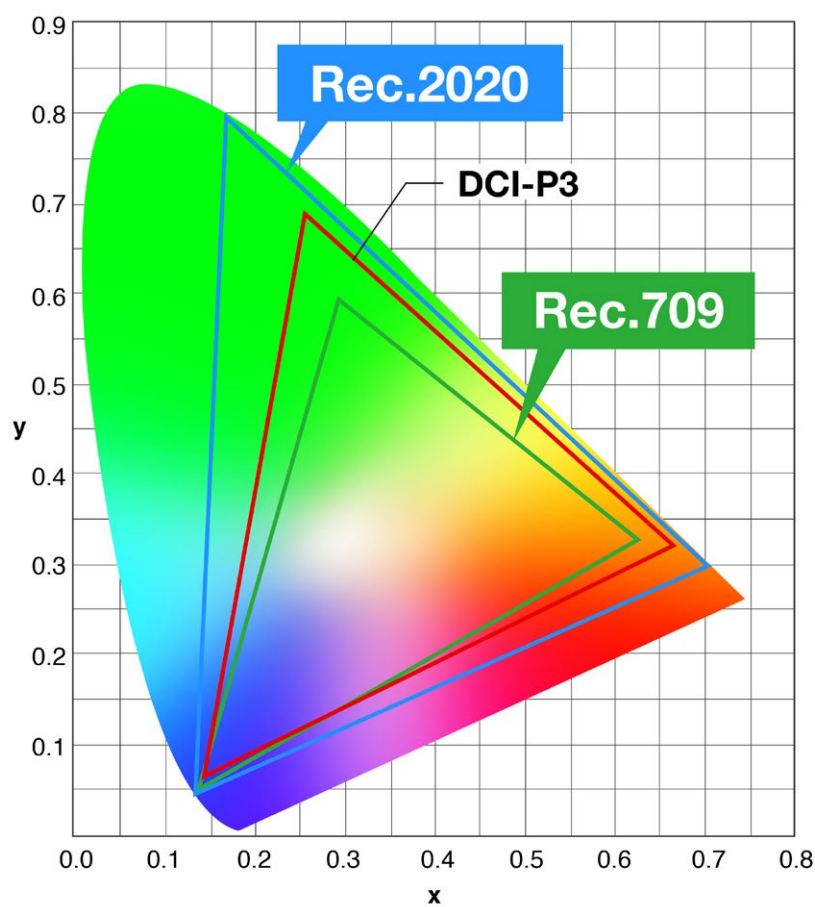
2-1 Rec.2020 Overview

The Rec.2020 standard defines the color gamut for UHD (4K/8K) broadcasting and next-generation video content. While Rec.709 remains the standard for HD television and most other content production, Rec.2020 covers a far broader color space visible to the human eye as defined by the CIE 1931 chromaticity diagram below, and DCI-P3—used in digital cinema offers a wider gamut than Rec.709 but is smaller than Rec.2020. Rec.2020 covers more than twice the color gamut of Rec.709 in the CIE 1931 chart[※].

The most notable differences are in the:

- Deep greens and cyans
- Highly saturated neons
- Deep reds through magenta tones

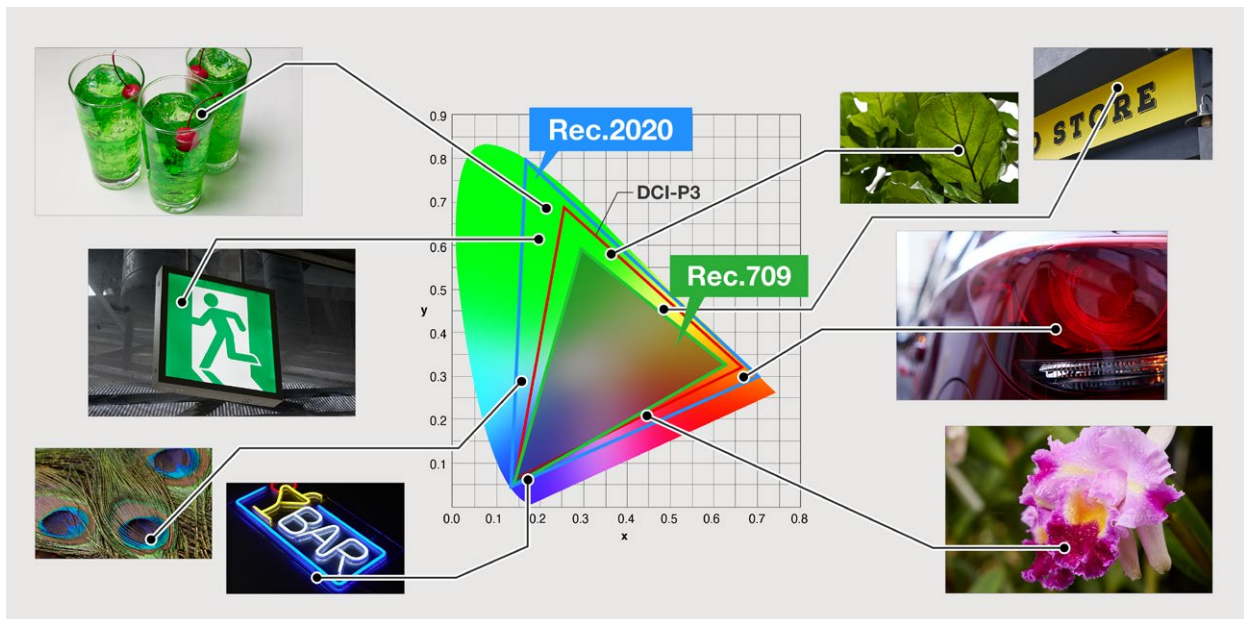
Conventional display systems tend to saturate or clip these colors.



► CIE 1931 Chromaticity Diagram

※ Recommendation ITU-R BT.2020-2, 2015

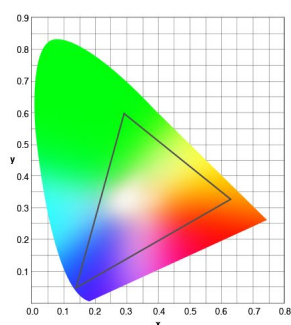
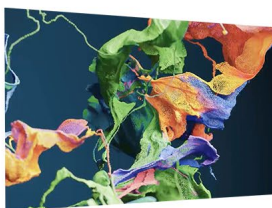
Lush greenery, vibrant flowers, sunset gradients, traffic lights, neon signage, brand accent colors — many everyday hues fall outside the Rec.709 gamut. Also, many printed materials are produced in the Adobe RGB color space, whose gamut is close to DCI-P3. The human eye clearly perceives this vibrance, but displays limited to Rec.709 often mute these colors or substitute them with nearby hues.



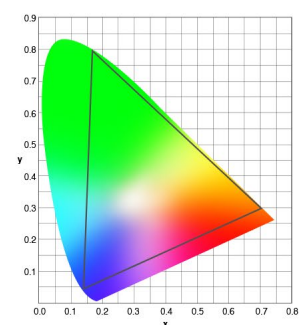
► Colorimeter-Measured Object Color Values vs Rec.709 Gamut

Rec.2020 encompasses these real-world high-saturation colors to reproduce hues previously unattainable due to display limitations. Rec.2020 is not merely a more vivid standard but one that more faithfully reproduces reality, and represents the visual world as we perceive it.

Rec.709



Rec.2020



► Rec.709 vs Rec.2020 Color Gamuts

Images for illustrative purposes only

2-2 Even if Rec.2020 content is unavailable, Rec.2020-capable projectors still enhance Rec.709

Rec.2020 production will be important for deeper immersion in the future, but at present it requires extra time and expense. However, even without Rec.2020 content, you can leverage Rec.2020-grade color reproduction to make Rec.709 material look noticeably better.

(1) Higher Impact Rec.709 Content

The Rec.2020-capable mode can enhance the visual impact of Rec.709 content. These projectors subtly elevate the saturation and color contrast to deliver a more vivid and visually striking presentation without altering the source content.



Rec.709 Content
×
Rec.709 Projection

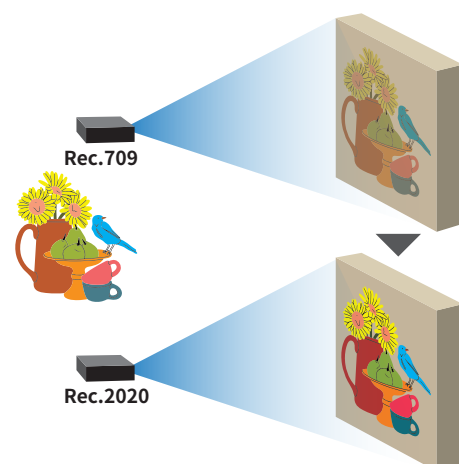


Rec.709 Content
×
Rec.2020 Expanded Projection

Images for illustrative purposes only

(2) Greater Flexibility in Color Correction

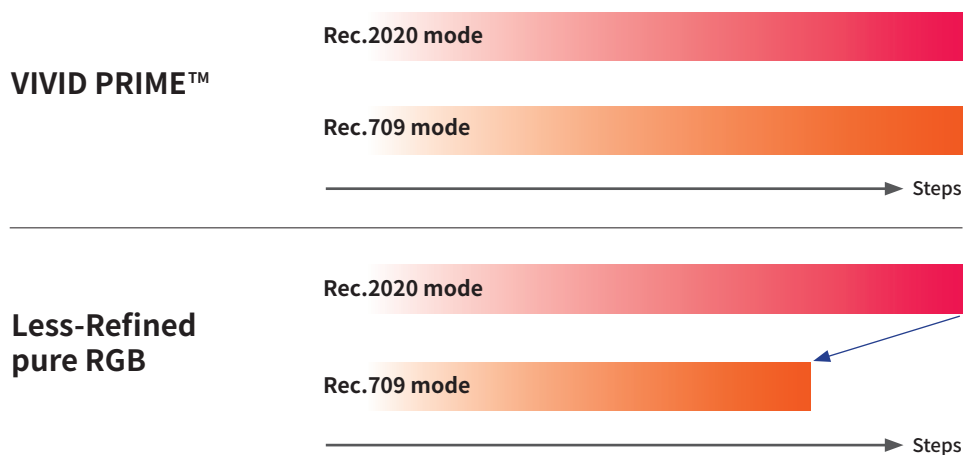
Real-world environments rarely provide the ideal conditions. Exhibitors often must project visuals onto gray or lightly colored walls, non-white projection surfaces, or deal with unwanted ambient light. A projector with a wider color gamut provides additional “headroom” for color correction. This leeway allows operators to compensate for environmental constraints and achieve colors closer to the original intent through color management and correction profiles.



3 Key Considerations with Rec.2020- Equipment

Most existing equipment and content in current installations are still based on the Rec.709 standard, even though Rec.2020 is becoming increasingly important. For the foreseeable future, Rec.709 and Rec.2020 will coexist. Operational environments will need to seamlessly support both standards.

Projector systems with pure RGB laser designs can vividly reproduce Rec.2020 colors, but exhibitors must pay close attention to how Rec.709 content is handled. In particular, pure RGB laser projectors optimized for Rec.2020 may cause subtle changes in gradation or tonal smoothness when displaying Rec.709 content depending on the color conversion accuracy and panel control. These inconsistencies can lead to viewer discomfort or reduced satisfaction, which could undermine the value of upgrading equipment.



► Image Illustrating Gradation Loss When Projecting Rec.709 Content with a pure RGB Laser

Therefore, when evaluations of Rec.2020-compatible projectors need to assess not only how well Rec.2020 content is displayed, but also:

- Whether Rec.709 content appears natural
- The operational burden of actual use

In environments where both standards coexist, exhibitors must use the ability to support both color gamuts without compromise as critical selection criteria.

4 Dual Operation and New Value offered by VIVID PRIME™

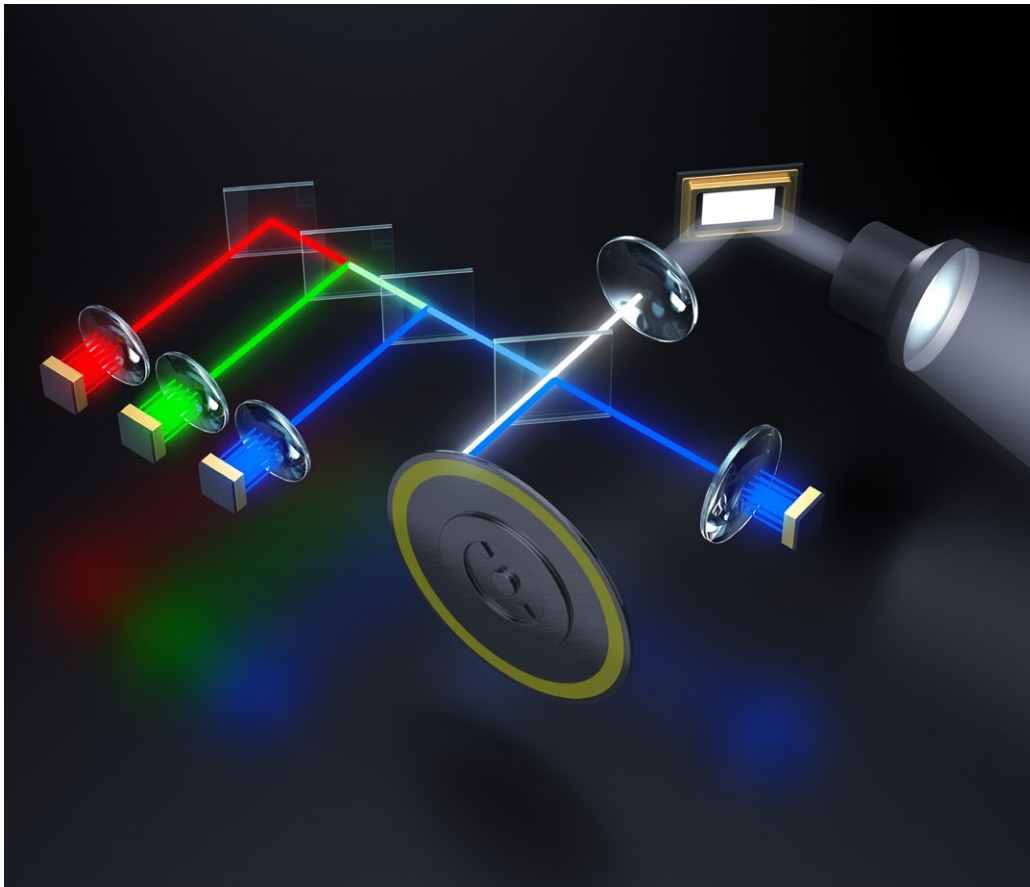
4-1 VIVID PRIME™ Overview



► VIVID PRIME™ Logo

VIVID PRIME™ is a proprietary MEVIX light-source technology, developed to support both Rec.709 and Rec.2020 content on a single projector.

VIVID PRIME™ integrates signal processing with an advanced optical system to ensure stable color reproduction and smooth gradation across both standards. Rather than prioritizing only Rec.2020, this system can seamlessly switch between color spaces within a single installation.



► VIVID PRIME™ Architecture (RGB Laser + Phosphor Wheel)

Images for illustrative purposes only

4-2 Reduce Rainbow Effect for Comfortable Viewing

The rainbow effect in 1-Chip DLP® projectors is the color separation perceived during eye movement, which can occur in immersive environments where viewers move freely. This is especially noticeable around high-contrast edges and subtitles. The rainbow effect may also cause eye fatigue.

VIVID PRIME™ utilizes a color-wheel-less design to significantly reduce the rainbow effect without losing the benefits of 1-Chip DLP®. This ensures audiences can focus on the content itself without distractions, even in highly immersive installations.

● Rainbow Effect That Interferes with Viewing



Rainbow Effect Occurs



Rainbow Effect Suppressed

4-3 PT-HTQ20 Option

PT-HTQ20 is one projector equipped with VIVID PRIME™. The design takes advantage of a practical solution to the challenges associated with using Rec.2020. This model also supports the functionality and options of 3-Chip Panasonic DLP® models to address operational efficiency, installation flexibility, and stable on-site performance needs.

Specifications(Tentative)

Projector type	1-Chip DLP® RGB Laser Projector
Light Output*1,2	20,000 lm *3 / 20,000 lm (ANSI) *4 / 20,400 lm (Center) *5 (TBD)
Light Source	Laser diodes (Red LD, Green LD, Blue LD)
Resolution	4K (3840 × 2400 dots) (Quad Pixel Drive: ON)
Dimensions (W × H × D)	Approx. 590 × 220 × 600 mm (23 7/32" × 8 21/32" × 23 5/8") (Excluding feet, protruding parts, and lens) (TBD)
Weight*6	Approx. 38 kg (83.8 lbs) (TBD)

*1 This is the value when the Zoom Lens (Model No.: ET-D3LES250) is used. The value varies depending on the lens.

*2 When [PICTURE MODE] is set to [DYNAMIC] and [LIGHT POWER] is set to [NORMAL].

*3 Measurement, measuring conditions, and method of notation all comply with ISO/IEC 21118: 2020 international standards. Value is the average of all products when shipped.

*4 Measurement, measuring conditions, and method of notation all comply with American National Standards Institute standards. Value is the average of all products when shipped.

*5 Average light-output value of all shipped products measured at the center of screen in NORMAL Mode.

*6 Average value. May differ depending on the actual unit.

► PT-HTQ20 Product Image

