VIZIO

Reference Series Reviewer's Guide

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Epic Entertainment Experience

High Dynamic Range. 4K UHD. Built-in 5.1 Surround Sound[1]. Visionary Design.

Introducing the award-winning VIZIO Reference Series Ultra HD HDR LED Smart TV. Designed for the cinephile, the Reference Series pushes the boundaries of color and contrast to deliver an entirely new level of realism. High Dynamic Range (HDR) creates a contrast range with true-to-life intensity, more accurately reproducing the nuances in every picture, revealing fine details otherwise lost in the light or dark areas of an image. And Ultra Color Spectrum™ delivers every hue and tone with impeccable accuracy, made possible with a wider range of color and shading, rendering colors closer to the range a human eye can see.

The Full-Array LED backlight features an unprecedented 384 Active LED Zones® for precise backlight control to deliver rich, deep black levels and vibrant contrast. Sports and action fans will appreciate the powerful Clear Action™ 1800 with 240Hz effective refresh rate achieved with backlight scanning for sharper detail in fast action scenes. With its integrated 5.1 Sound Bar System, Reference Series marks a breakthrough achievement in home theater. It features a high performance sound bar built into its base, supplemented by a powerful 10-inch wireless subwoofer and 2 rear satellite speakers. Enhanced by top-of-the-line audio technologies from Dolby® and DTS™, Reference Series delivers over 101dB of crystal-clear sound with less than 1% harmonic distortion[2], making it one of the best-sounding TVs in the world.

Collectively, these technologies set a new standard for picture quality, with redefining picture quality innovations, incredible UHD performance, and powerful home theater sound for a larger than life, captivating experience that brings your entertainment to life.

1 Available on R65 only.
2 Sound Pressure Level measured using pink noise at 1 meter, C-weighted. Total harmonic distortion calculated as electrical measurement of amplifier distortion.

Product Tour - 65" Class Model

High Dynamic Range

Full-Array LED Backlight with 384 Active LED Zones®

Ultra Color Spectrum™ with Quantum Dot

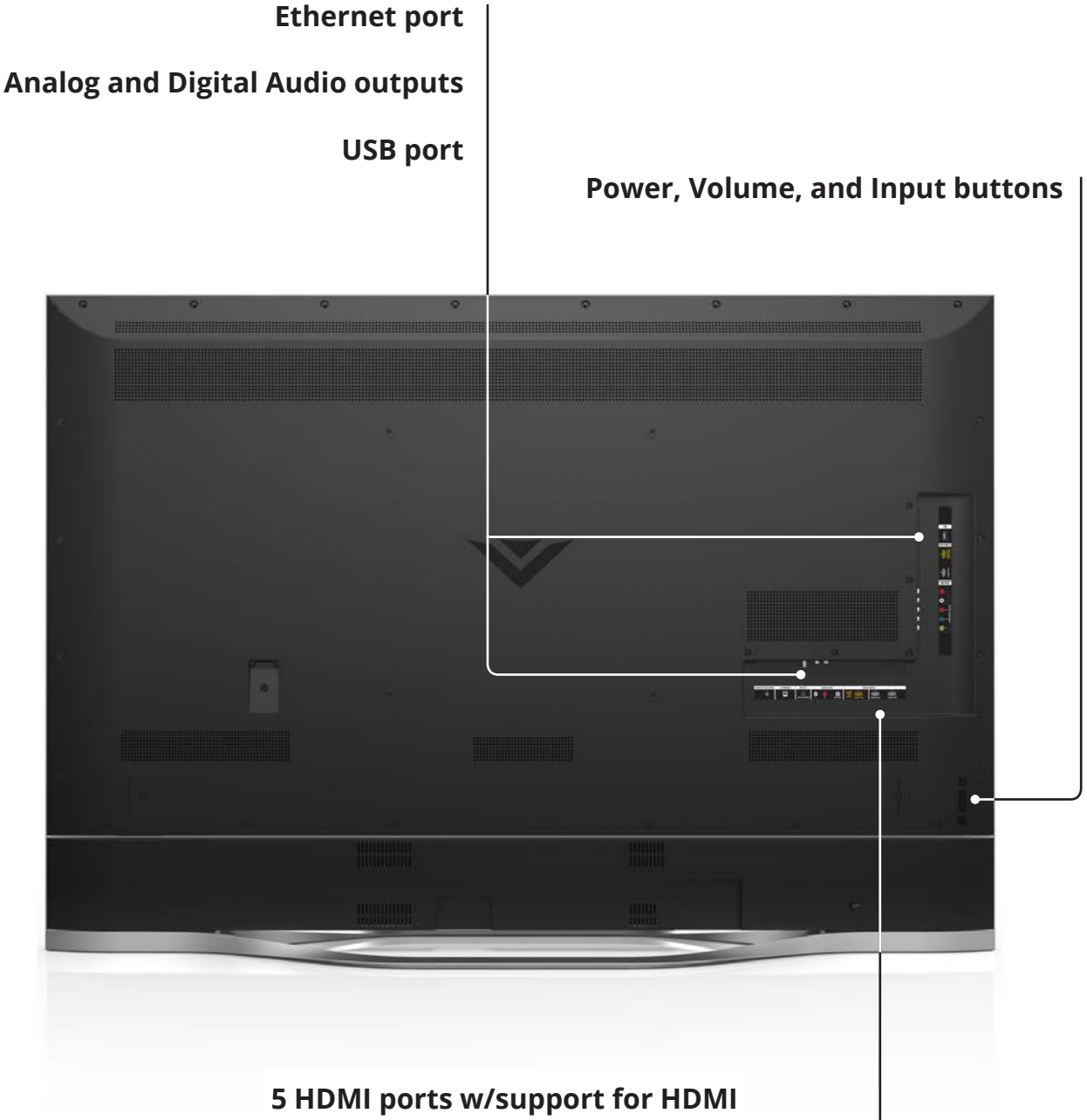
5.1 Home Theater Sound Bar System

Modular Configuration

- TV + Sound Bar + Stand
- TV + Stand
- TV Wall-Mounted with Sound Bar
- TV Wall-Mounted

Front Panel

Product Tour - 65" Class Model



5 HDMI ports w/support for HDMI

HDMI	UHD Video	HDCP
1	@ 30Hz	2.2
2	@ 30Hz	2.2
3	@ 30Hz	2.0
4	@ 30Hz	2.0
5	@ 60Hz	2.2

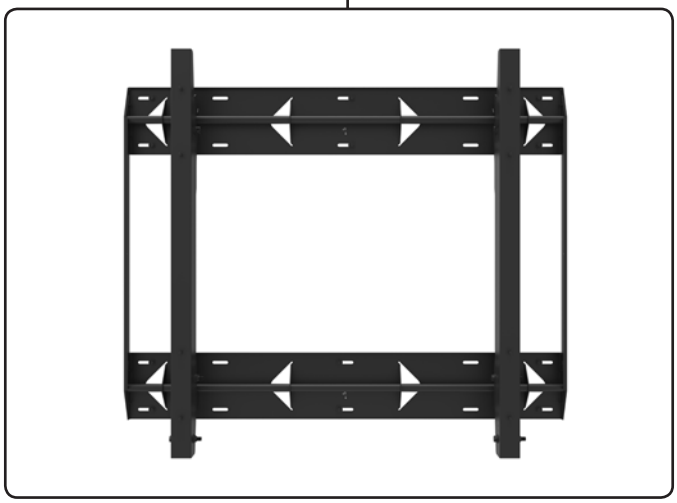
Back Panel

Product Tour - 120" Class Model

High Dynamic Range

Full-Array LED Backlight
with 384 Active LED Zones®

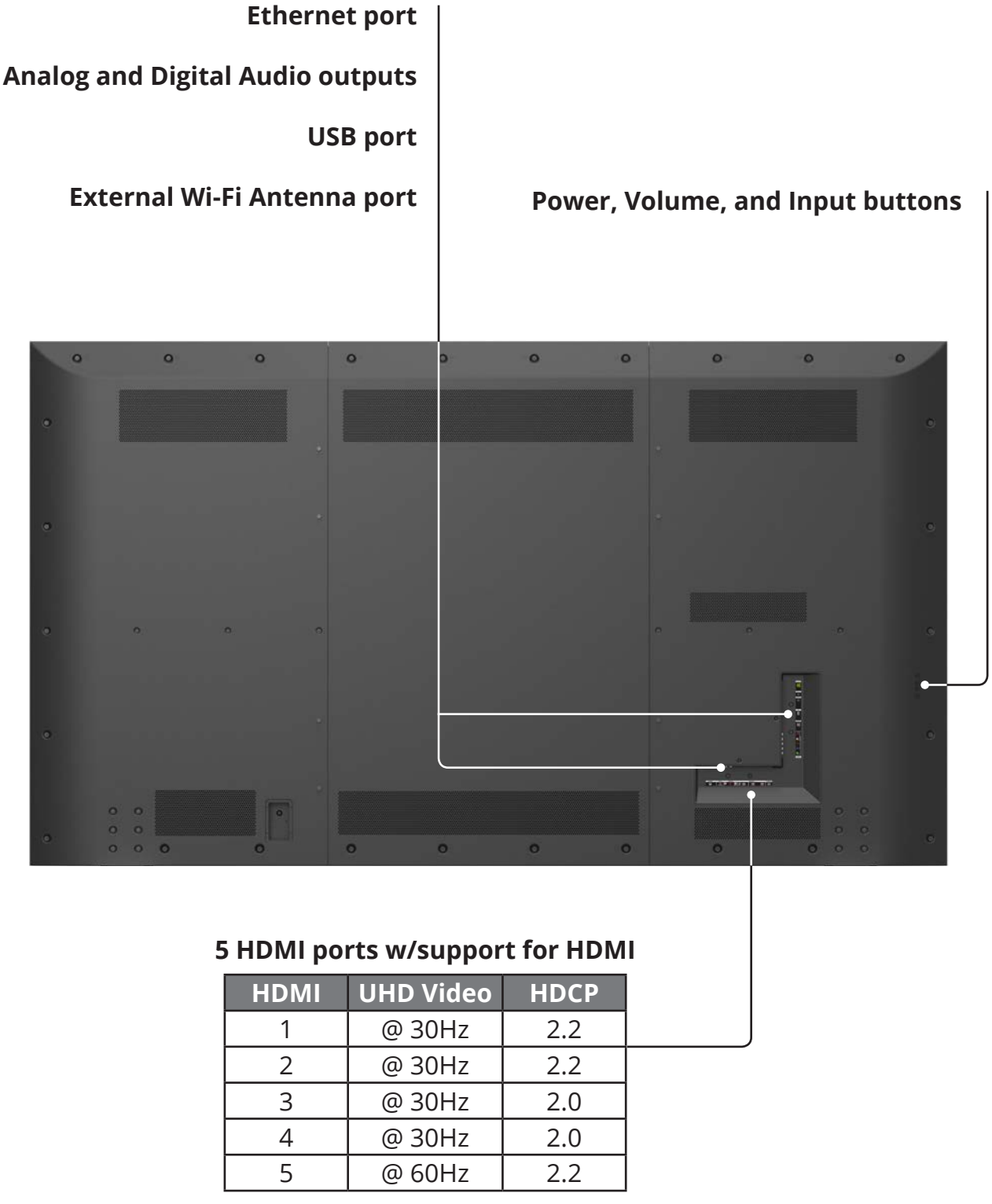
Ultra Color Spectrum™



Includes Wall-Mount

Front Panel

Product Tour - 120" Class Model



5 HDMI ports w/support for HDMI

HDMI	UHD Video	HDCP
1	@ 30Hz	2.2
2	@ 30Hz	2.2
3	@ 30Hz	2.0
4	@ 30Hz	2.0
5	@ 60Hz	2.2

Back Panel

For illustrative purposes only.

Dolby Vision™ High Dynamic Range Support

The Reference Series features Dolby Vision™ High Dynamic Range (HDR), a transformative technology for imaging that delivers a dramatic visual experience — astonishing brightness, incomparable contrast, and captivating color — bringing entertainment to life. It achieves this stunning image quality by leveraging HDR and wider color gamut of Ultra Color Spectrum™, both on-screen and in specially mastered content.

VIZIO Reference Series and Dolby Vision helps deliver a better viewing experience through...

- **Greater Contrast -** delivering much brighter highlights and deeper darks to create greater contrast through powerful high dynamic range technology and an ultra bright 800 nit backlight display.

- **True-to-Life Color -** provides a fuller palette of colors never before seen on TV through innovative wide color gamut technology.

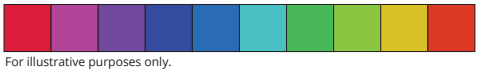
High Dynamic Range

Standard Dynamic Range

For illustrative purposes only.

Ultra Color Spectrum™

Conventional Color Gamut



For illustrative purposes only.

Dolby Vision also delivers more realistic and moving content by maintaining more information (detail) through transmission/processing for more true-to-intent imagery. On top of that, better pixels mimic real viewing experiences to excite senses, physical, and emotional responses.

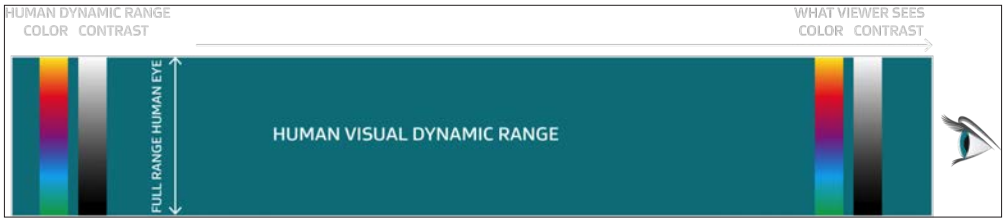
To enjoy the complete Dolby Vision experience, you will need to watch content that has been mastered in Dolby Vision. Initially, this content will be available on VIZIO Reference Series through VUDU. For the purposes of this review, content in Dolby Vision has been provided on USB keys for ease of use. This reviewer's guide provides a detailed outline for you to properly set up and calibrate a Reference Series TV enabled with Dolby Vision.

Why Dolby Vision

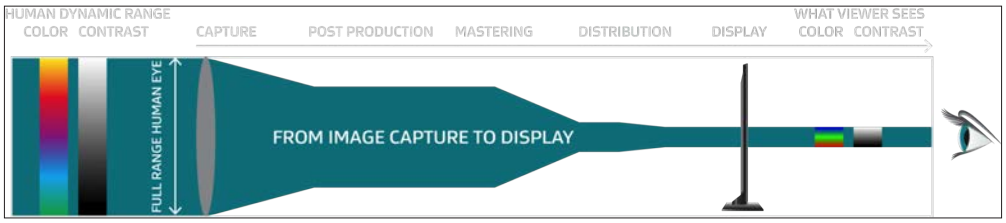
Today's standards mean that the range of contrast and colors captured by cameras cannot be reproduced in the cinema and today's TV standard (Rec. 709): Blu-ray. Because of these standards, certain colors or brightness in an image are discarded in the production process to "fit" into the standards required for cinema and Blu-ray playback. The current TV and Blu-ray standards limit maximum brightness to approximately 100 nits (cd/m^2) and minimizes brightness to approximately 0.1 nits (cd/m^2), while also limiting the color gamut that can be displayed.

Dolby Vision allows content creators to maintain more contrast and colors by providing technology that allows them to not only see what the camera has captured in post production, but also allows for transmission of premium content regardless of HD or 4K resolutions. Furthermore, Reference Series TVs have been carefully calibrated by VIZIO and Dolby engineers. As a result, the content is displayed as the creators intended.

Image Delivery to the Human Eye



Content Delivery in Today's Blu-ray Infrastructure



Content Delivery in Dolby Vision

For a deeper understanding of Dolby Vision™ and CalMAN calibration, see page 15.

If you would like to learn even more about Dolby Vision TV technology, the content creation process, or upcoming movie releases, please visit dolby.com/vision. For further press materials or questions, please contact Grace Qaqundah, Dolby PR at gqaqu@dolby.com.

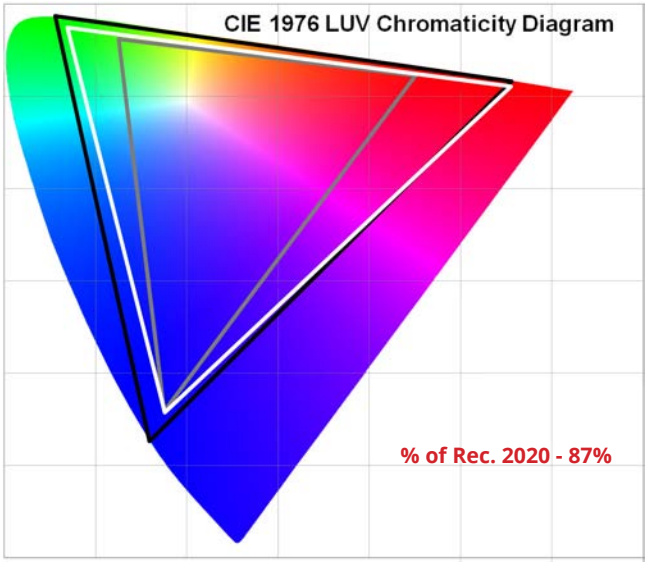
For illustrative purposes only.

Ultra Color Spectrum™

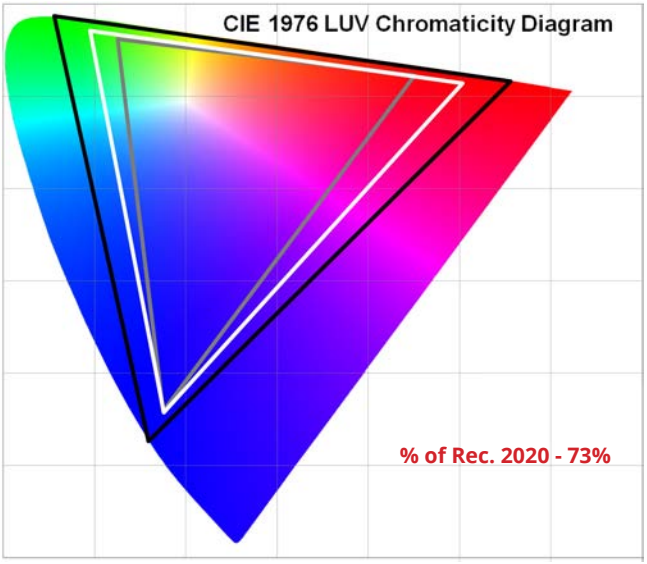
Unlike most TVs, which can only reproduce Rec. 709 – the long-time color space standard – Reference Series features Ultra Color Spectrum technology for a wider color gamut, with a Quantum Dot panel in the 65" class model rendering colors closer to the range a human eye can see. With VIZIO Ultra Color Spectrum, viewers can experience every hue and tone with impeccable accuracy, for a nuanced picture that stays true to the creator's vision.

The CIE color charts below represent actual color measurements between Rec. 709, Rec. 2020, and VIZIO's Ultra Color Spectrum:

65" Display with Quantum Dot



120" Display



Rec. 709

Rec. 2020

VIZIO Ultra Color Spectrum™

VIZIO's Most Active LED Zones®

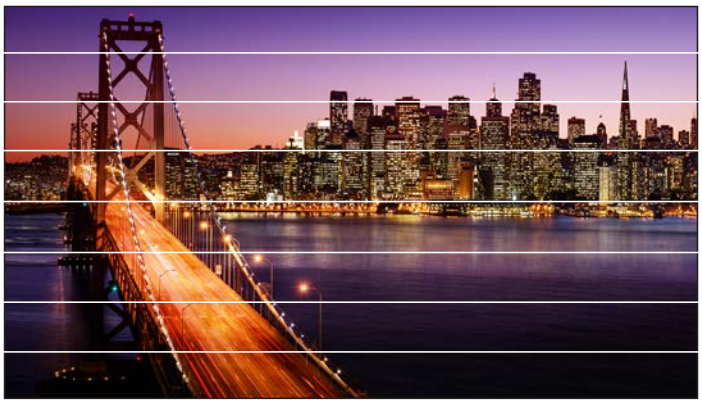
For illustrative purposes only.

Importance of Full-Array Local Dimming for High Dynamic Range

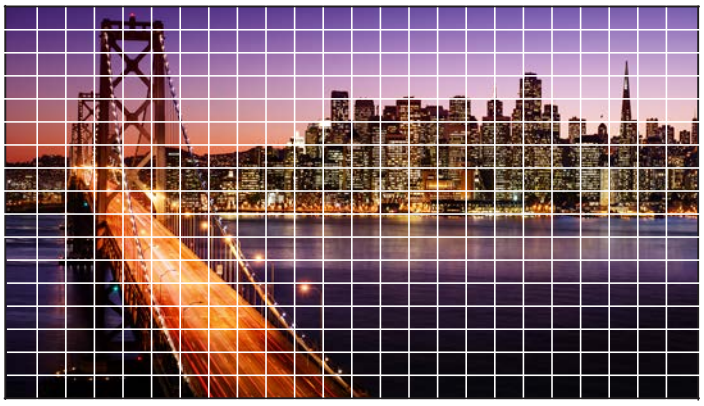
With the increased contrast in High Dynamic Range content, it is critical to use local dimming to optimize low black level and peak brightness. VIZIO's Full-Array 800-Nit LED backlight with 384 zones of local dimming makes for an incredible picture, accurately delivering peak brightness to highlights and deep black level to shadow detail, enabling a wider and more dynamic range of luminance.

Edge-lit backlight designs, with their limited local dimming zones, cannot accurately adjust for highlights and shadow detail because the zones are too large - compromises need to be made between peak brightness and black level.

Edge-Lit Local Dimming: 8 Zones

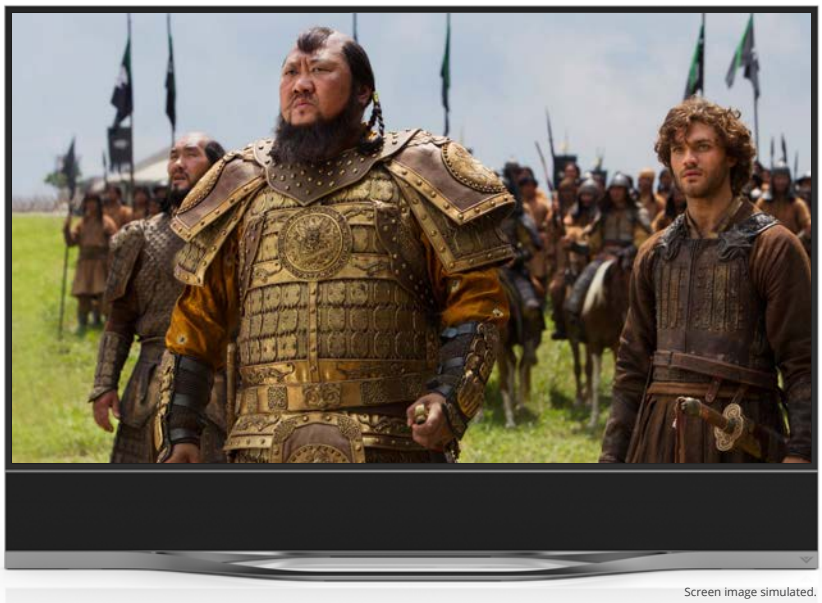


Full-Array LED Local Dimming: 384 Zones



Actual zones may vary.

Watch in High Dynamic Range



Screen image simulated.

Watch Marco Polo now on Netflix.

For over 10 years, VIZIO has been building TVs that consumers want. And there is a good reason why we have one of the highest connect rates of the industry—our smart TV interface is fast and easy to use. It's no wonder VIZIO is a leading smart TV company in America.

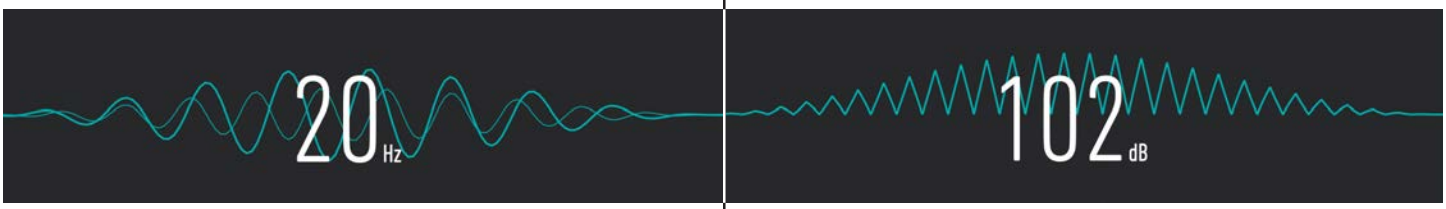
With Reference Series, consumers will be able to enjoy Dolby Vision content right away in VIZIO Internet Apps Plus®, using VUDU. An ongoing list of upcoming titles available for streaming in Dolby Vision can be found at VUDU.com/UHD. In addition, viewers will also soon be able to enjoy select Netflix original series in Dolby Vision.

VIZIO Internet Apps Plus represents years of development and design innovation to deliver consumers an even smarter Smart TV experience. It features a more intuitive user interface and V6 six-core processor making it easier for power or novice users alike to discover and access their ever-growing collection of favorite Smart TV apps. With support for HEVC (H.265) decoding and the latest Wi-Fi standard 802.11ac (that's up to 3x faster than 802.11n[1]), viewers can experience popular content with the incredible detail, color, depth, and contrast of High Dynamic Range.

1 Source: IEEE standard 802.11 specifications. Maximum throughput rate of 802.11ac (1300 Mbps) is approximately three times faster than that of 802.11n (450 Mbps). Actual rate will vary, and will be subject to router model, site environment, range, Internet bandwidth and other factors.

Best Sounding TV*

With its integrated 5.1 Sound Bar System, Reference Series marks a breakthrough achievement in home theater. It features a high performance sound bar built into its base, supplemented by a powerful 10-inch wireless subwoofer and 2 rear satellite speakers. Enhanced by top-of-the-line audio technologies from Dolby® and DTS™, Reference Series delivers over 101dB of crystal-clear sound with less than 1% harmonic distortion[1], making it one of the best-sounding TVs in the world.



Rich Rumbling Bass

The 10" wireless Bluetooth® subwoofer delivers deeply resonant, window-rattling bass as low as 20 Hz with the convenience of playing it anywhere in the room.

Big Explosive Sound

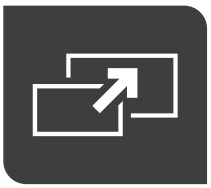
The built-in 3-channel VIZIO Sound Bar and two satellite speakers deliver immersive quality with immense sound pressure of up to 102 dB with less than 1% Total Harmonic Distortion.

* Best Sounding TV using Integrated 5.1 Home Audio System on RS65 model.

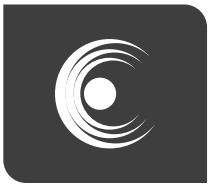
1 Sound Pressure Level measured using pink noise at 1 meter, C-weighted. Total harmonic distortion calculated as electrical measurement of amplifier distortion.

Additional Features

Superior Ultra HD picture
Experience incredible detail and clarity with over 8 million pixels and 4x the resolution of 1080p Full HD.



Spatial Scaling Engine™
Beautifully transforms HD and Full HD content to spectacular 4K Ultra HD resolution.



Clear Action™ 1800
Enjoy fast action sports and movies with superior motion clarity thanks to powerful image processing and blazing 240Hz effective refresh rate achieved with backlight scanning.

802.11ac Dual-Band Wi-Fi*
Blazing fast wireless, perfect for Ultra HD movies and shows from anywhere in the home.

V6 Six-Core Processor
Quad-core GPU and Dual-core CPU for blazing fast performance and faster, smoother Smart TV experience.

* RS120: Wi-Fi available only when wireless antenna is connected.

Specifications

RS65

Screen Size	65" (Diagonal 64.52")
High Dynamic Range	Dolby Vision™
Wide Color Gamut	Ulra Color Spectrum™
Quantum Dot	Yes
Backlight Type	Full-Array LED
Brightness	800 nits
Active LED Zones	384
Resolution	3840 x 2160 (4K UHD)
Clear Action™	1800
Effective Refresh Rate	240Hz
Active Pixel Tuning	Yes
Smart TV	VIZIO Internet Apps Plus®
Wi-Fi	Yes, 802.11ac Dual-band
Processor	V6 Six-Core Processor
UHD Engine	VM50

AUDIO

Hardware	1 x Sound Bar 2 x Satellite Speakers 1 x 10” Subwoofer
Audio Decoding Technology	DTS StudioSound™ DTS TruSurround DTS TruVolume™

INPUTS

HDMI	5
Component	1
Composite	1 (shared with component)
Tuner	1
Ethernet	1
USB	1

OUTPUTS

Analog Audio Out	Yes (RCA)
Digital Audio Out (SPDIF)	Yes (Optical)

INCLUDED ACCESSORIES

Remote Control	XRT500
IR Blaster	

ENERGY CONSUMPTION

Standby Power Consumption	<1W

RS120

Screen Size	120" (Diagonal 120")
High Dynamic Range	Dolby Vision™
Wide Color Gamut	Ulra Color Spectrum™
Backlight Type	Full-Array LED
Brightness	800 nits
Active LED Zones	384
Resolution	3840 x 2160 (4K UHD)
Clear Action™	1800
Effective Refresh Rate	240Hz
Active Pixel Tuning	Yes
Smart TV	VIZIO Internet Apps Plus®
Wi-Fi	Yes, 802.11ac Dual-band
Processor	V6 Six-Core Processor
UHD Engine	VM50

INPUTS

HDMI	5
Component	1
Composite	1 (shared with component)
Tuner	1
Ethernet	1
USB	1

OUTPUTS

Analog Audio Out	Yes (RCA)
Digital Audio Out (SPDIF)	Yes (Optical)

INCLUDED ACCESSORIES

Remote Control	XRT500
IR Blaster	
Custom Wall-Mount	

ENERGY CONSUMPTION

Standby Power Consumption	<1W

Appendix A

CalMAN Calibration of Dolby Vision

The CalMAN Dolby Vision workflow allows users to calibrate your Dolby Vision VIZIO Reference Series TV.

Dolby Vision has several key differentiators that are essential to understand in order to characterize devices. First, when using the Dolby Vision workflow, it is important to note that Dolby Vision works with absolute luminance values in cd/m^2 instead of relative values. Dolby Vision supports very large color volumes with luminance levels ranging from 0.0 (absolute black) to 10,000 cd/m^2 and wider color gamuts such as Rec.2020 color. As common display devices are unlikely to support the full extent of this range, the Reference Series maps content in real-time from this large input color volume to the color volume of the actual display. This process preserves as much of the fidelity of the original source color volume as possible.

Additionally, unlike today's systems that use Gamma curves, Dolby Vision utilizes a new tone response curve (also called 'EOTF'), and bit depths of 10 Bits or higher. This helps to avoid any potential quantization errors that can cause image artifacts such as contouring or 'banding'. The new EOTF is described in SMPTE standard ST.2084.

For calibration, there are some conceptual changes that are different for Dolby Vision. The goal of a calibration is not to closely match the performance of a TV to an industry standard color description such as Rec.709. Instead, due to the intelligent real-time mapping of the large input color volume to the display's capabilities, characterization and calibration are carried out against a 'Golden Reference'. The 'Golden Reference' describes the full capabilities unique to this display model and has to be selected before starting any measurement.

Requirements:

- A license for SpectraCal CalMAN version 5.6 or greater
- A Windows® based PC with HDMI® port. The HDMI output has to be capable of providing a Full HD (1920x1080) RGB signal at 4:4:4 color
- A capable measurement device (e.g. Konica-Minolta CS2000, Photo Research PR740, Klein K10A, Jeti Specbos 1211, SpectraCal C6 Colorimeter).
- A dark room to avoid the influence of stray ambient light when measuring. Ideally, use a contact measurement probe or a frustum tube in front of a spot measurement device.

To begin calibrating your Reference Series TV:

1. CalMAN Dolby Vision Workflow:

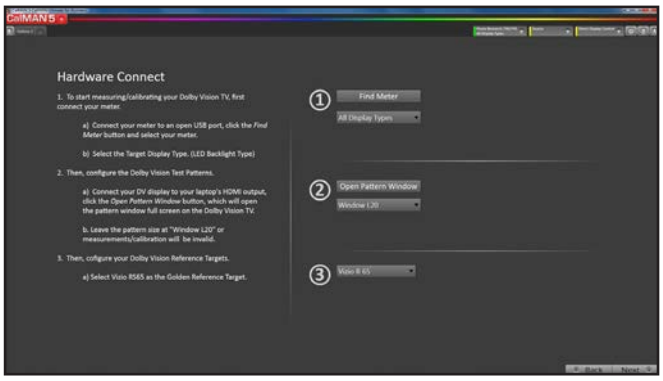
After starting CalMAN, the Dolby Vision workflow presents itself with a landing page introducing its general concept.

Select **Next** to continue.

2. Connect devices to CalMAN

Follow the on-screen instructions to properly connect the hardware components needed for CalMAN.

When you are finished, select **Next** to continue.

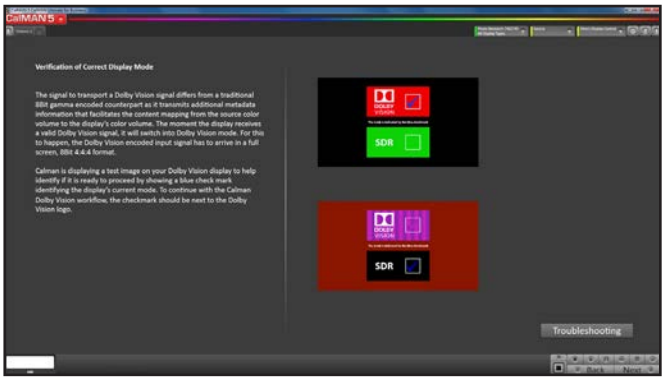


3. Verify TV is in Dolby Vision Mode

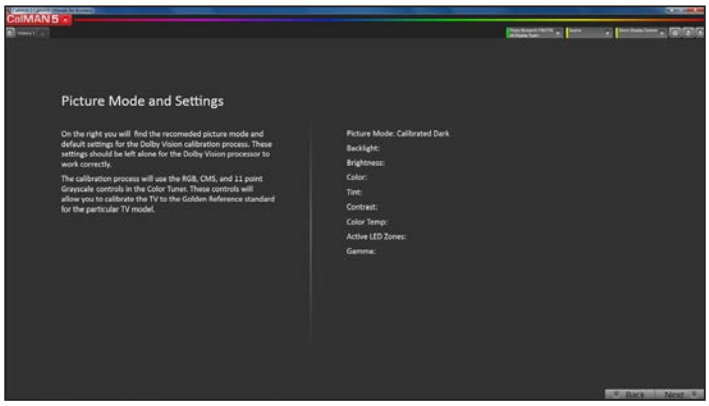
Follow the on-screen instructions to verify that the TV is in Dolby Vision mode.

Select **Troubleshooting** for a few helpful tips if you are having trouble.

When you are finished, select **Next** to continue.

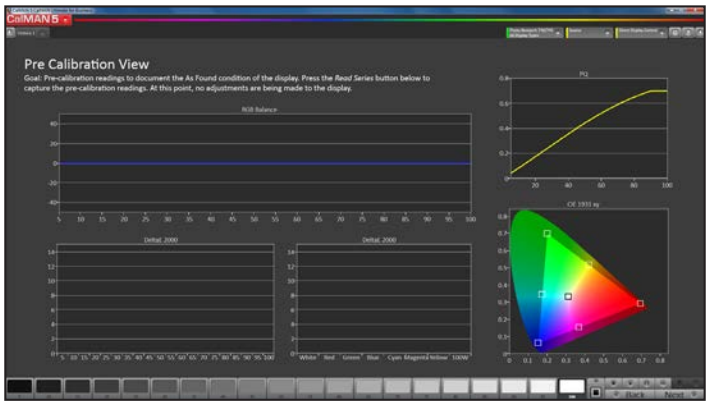


4. Pre-Calibration Settings



Before you begin with the calibration of the display, it is important that you verify that all the settings in your display's GUI (Graphical User Interface) match the ones provided with the 'Golden Reference'. This is necessary as the calibration profile of the Dolby Vision you selected on the previous workflow page is unique to that of the VIZIO Reference Series TV. Incorrect GUI settings can bias characterization results and ultimately affect picture quality. Therefore, when characterizing the display for the first time, please verify that the settings match those of the 'Golden Reference'.

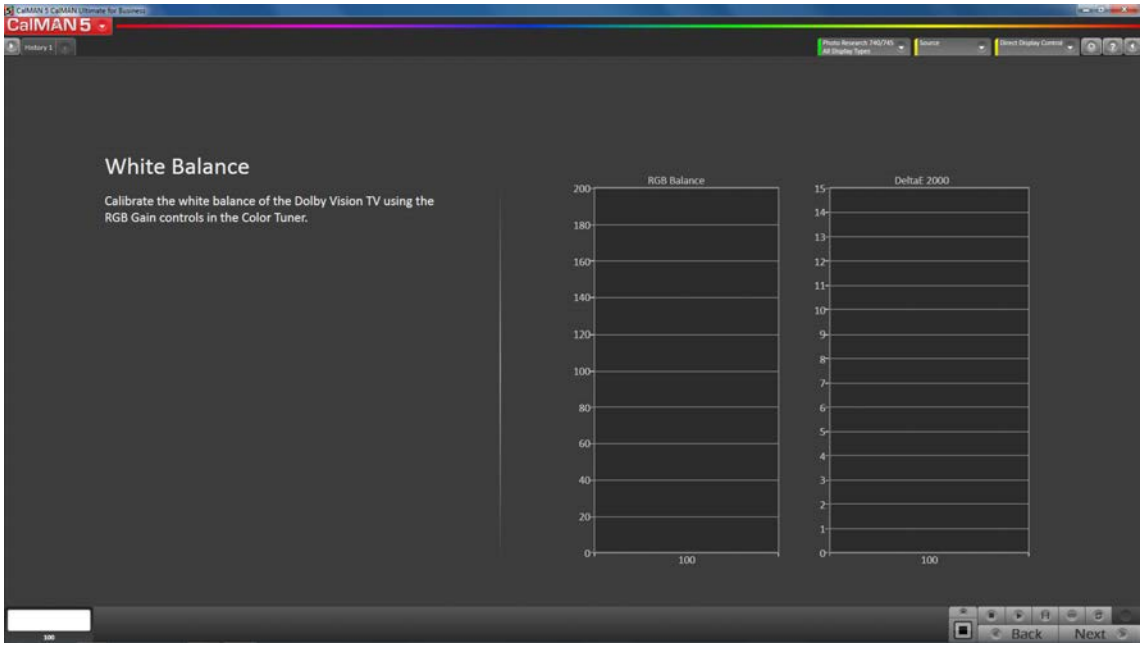
If you have already carried out a calibration and have custom values set in your TV, it is advised to write down the 'As Found' GUI settings accordingly before proceeding with this workflow. This will give you a reference of your settings before starting the characterization and calibration process.



Similar to recording the Reference Series' 'As found' GUI settings, it is beneficial to measure key parameters of the display as reference. This will help in the following step when comparing the effectiveness of any calibration. As with traditional CalMAN workflows, press the Read Series button () in the lower right to automatically measure all key parameters, such as luminance distribution, gray scale performance as well as color primaries and secondaries.

When you are finished, select **Next** to continue.

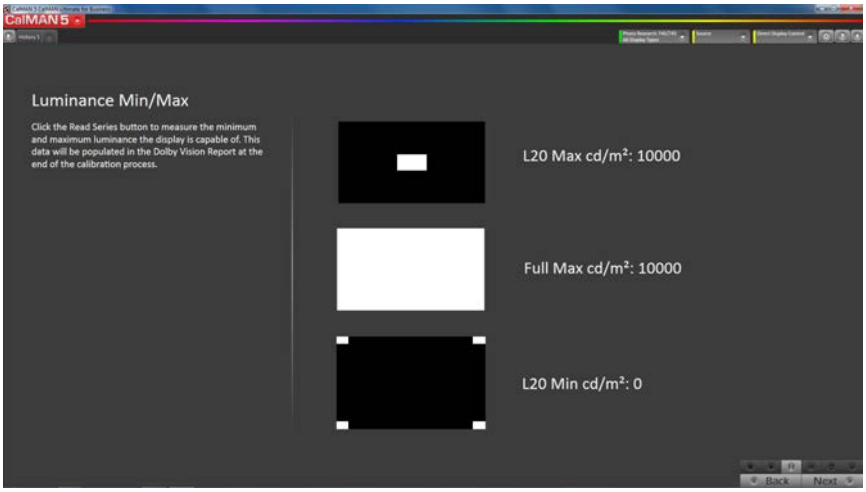
5. Determining the White-Balance



The white point of the VIZIO Reference TV is D65 (which describes a correlated color temperature of 6504 Kelvin). Changing the white-point of an imaging system can have an impact on the maximum luminance. Therefore, the white-point needs to be verified first before continuing with any further measurements.

When you are finished, select **Next** to continue.

6. Determining the Absolute System Black and White Levels



Display Minimum and Maximum Luminance

Dual modulation or 'local dimming' displays usually have a grid of light sources (usually LEDs) behind the LCD panel. This enables the display to selectively emit light behind specific, bright parts of the image, while simultaneously dimming the LEDs behind dark parts of the image. This is different than today's legacy monitors that use 'globally' backlit or edge-lit displays, where the full backlight is constantly on (or globally dimmed).

This dual modulation technology enables the display to simultaneously increase the available contrast, leading to deeper blacks, while at the same time providing crisp and bright highlights, both of which are highly beneficial to maximize the benefits when watching Dolby Vision content.

This workflow step identifies the luminance capabilities of the Reference Series display by measuring the intensity levels of three distinct measurement targets: Small patch maximum white, full screen white and the black level.

Small Patch Maximum White Measurement

A common approach to identify the maximum luminance of a dual modulation display is to measure a white L20[1] patch on a black background. This target size provides a solid benchmark assessment of the display's capabilities to render small bright areas or highlights.

Full Screen White Measurement

Depending on the way the display is designed, the full screen maximum luminance can vary from a smaller L20 patch measurement. This can, for example, be due to energy saving or internal thermal management reasons. Therefore, full screen white is measured and reported in addition to the L20 white.

1 Definition: The stimulus size is given by the L- or 'Load'-number. For example, L20 means that the stimulus diagonal is 20% of the full diagonal (4% of pixels are lit). The aspect ratio remains constant and the background is full black.

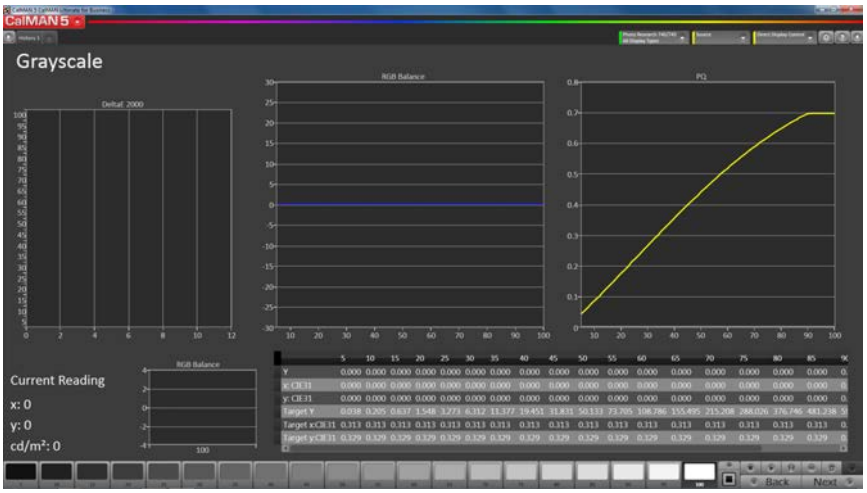
Black Level

The final measurement is to identify the black level of the display. The Reference Series displays switch off their backlight if they receive a full or mostly black image. The benefit of this is that the display is not visible in a fully darkened room. However, this is a special case, which usually only happens with fades to and from black[1]. As soon as there are any lighter (non-black) pixel areas in the image, the black level of the display usually rises significantly.

Therefore, to measure a more 'realistic' black level with a dual modulation display, CalMAN uses the corner box black level target[2]. This approach stops the display from switching off its backlight and therefore provides a better measurement of what black levels can be achieved with normal, not fully black content.

When you are finished, select **Next** to continue.

7. Check Gray-Tracking

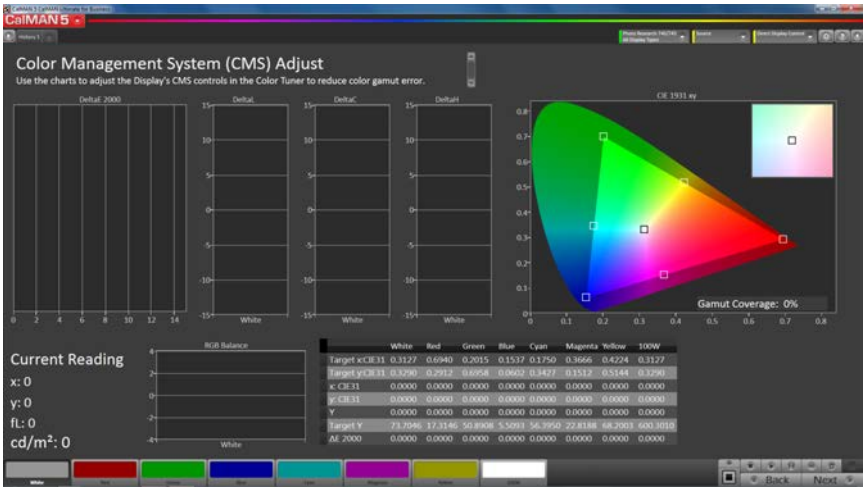


Here you will find tools to measure and correct the gray scale performance of the Reference Series. Similar to the gray scale calibration in other CalMAN workflows, the goal is to align the white-points of a gray ramp, which is D65 in the Dolby Vision system. Further, in the Dolby Vision workflow, the gray-scale calibration is carried out in PQ instead of Gamma.

When you are finished, select **Next** to continue.

1 This happens when the content fades to a full black screen e.g. at the end of a movie or from black at the beginning.
2 Further information about the test targets can be found in the SID/ICDM Information Display Measurements Standard v1.3: 5.13 CORNER-BOX CONTRAST.

8. Calibrate Color Management Systems



This workflow step helps to assess and potentially correct deviations of the Reference Series' display primary and secondary colors from the Golden Reference.

The Golden Reference primaries, secondaries and white point are depicted in the color gamut plot as open squares. Their measured counterparts are shown as open circles. Ideally, the circles lie inside the squares, which indicates that there is a match between Golden Reference and measurements. If they do not match, then the color settings of the display require adjustment, usually by using the display's color management system (CMS).

A more comprehensive tool to assess any deviation between reference and measurement is provided by error bar plots (using the industry standard DeltaE 2000 color difference metric). Those plots are separated into luminance, saturation and hue error, simplifying fine-tuning using the CMS. Here, the lower the bar (or the closer to 0.0), the closer the match to the Golden Reference.

Please refer to the CalMAN user manual for further explanation.
When you are finished, select **Next** to continue.

9. Verify Measurements

This final step of the workflow provides an overview of the effect of any new settings after all the calibration steps have been carried out. To get an assessment of how the TV calibration has improved, the result from this workflow step can be compared with the measurement from the pre-test.

10. Post Calibration Settings

Please record the new GUI settings after a successful calibration has been carried out.

11. Generate Report

After the Dolby Vision workflow has been carried out, CalMAN can generate a report, illustrating all findings. This is very similar to other CalMAN workflows. Please refer to the CalMAN user manual for further explanation.

The VIZIO Reference Series TV performs to its design specifications when the deviation to its Golden Reference is minimal.

Further information about Dolby Vision and its technical concepts can be found under:

- General description of the Dolby Vision Ecosystem: Brooks, D. G., 2015, 'The Art of Better Pixels', SMPTE Motion. Imaging Journal. May 1, 2015 vol. 124 no. 4, p42-48
- SMPTE ST 2084:2014: High Dynamic Range Electro-Optical Transfer Function of Mastering Reference Displays. The Society of Motion Picture and Television Engineers, doi: 10.5594/S9781614828297 ISBN: 978-1-61482-829-7
- Dolby Vision Website
- Dolby Vision Whitepaper

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Appendix B

Dolby Vision vs. SDR Content Comparisons

Before starting any assessments, whether objective assessment or content comparison, please verify that the Reference Series TV's display mode is set to 'Calibrated Dark' and that all GUI settings are set to their default (e.g. 'Backlight', Brightness', 'Contrast', etc.)

Optimal Test Setup:

- A completely dark room which removes all ambient light to avoid reflections
- 1 x USB flash drive with Dolby Vision content clips
- Blu-ray discs of Man of Steel and Lego Movie
- Blu-ray player
- 2 x test TVs: 2 x VIZIO Reference Series TVs, or 1 VIZIO Reference Series TV and a TV of comparable screen size and price point set to Calibrated Mode or Movie Mode
    - **Note:** if there is no second TV, play back Blu-ray discs on the Blu-ray player and display on the same Dolby Vision-enabled TV

Play back Man of Steel movie clip:

1. Connect the USB flash drive with Dolby Vision, HDR-quality content to the Reference Series TV while the TV is turned on.
2. Press the **V** button on the remote control, select **Multimedia** and press **OK**.
3. Select **DolbyVision** and press **OK**.
4. Select **Video** and press **OK.**
5. Select **ManOfSteel** clip from the USB flash drive.
6. Press **OK** twice to play back full screen on Reference Series TV.
   Note: Press **OK** to toggle play and pause
7. For comparison, connect a Blu-ray player to the second TV and play back the Blu-ray disc, fast-forward to the matched scenes with provided time codes.
8. Notice the enhanced detail of the Dolby Vision content on the Reference Series TV. The following pages include scene selections for reviewing Dolby Vision studio content.

Note: The following screen shots are for scene reference purposes only. Images may not represent the real viewing experience on the TV and do not represent what Dolby Vision content looks like. Materials may not be used for distribution, publicity, or promotion.

Play back Man of Steel movie clip:

- On the USB, scenes from 00:07 - 00:20
- On the Blu-ray disc, scenes from 04:56 - 05:09

When Russell Crowe walks out on the platform, the shape of the moon is clear and the color is more saturated.

When the first explosion occurs, the explosion is not washed out and a clear pink dot line is to show the explosion effect.

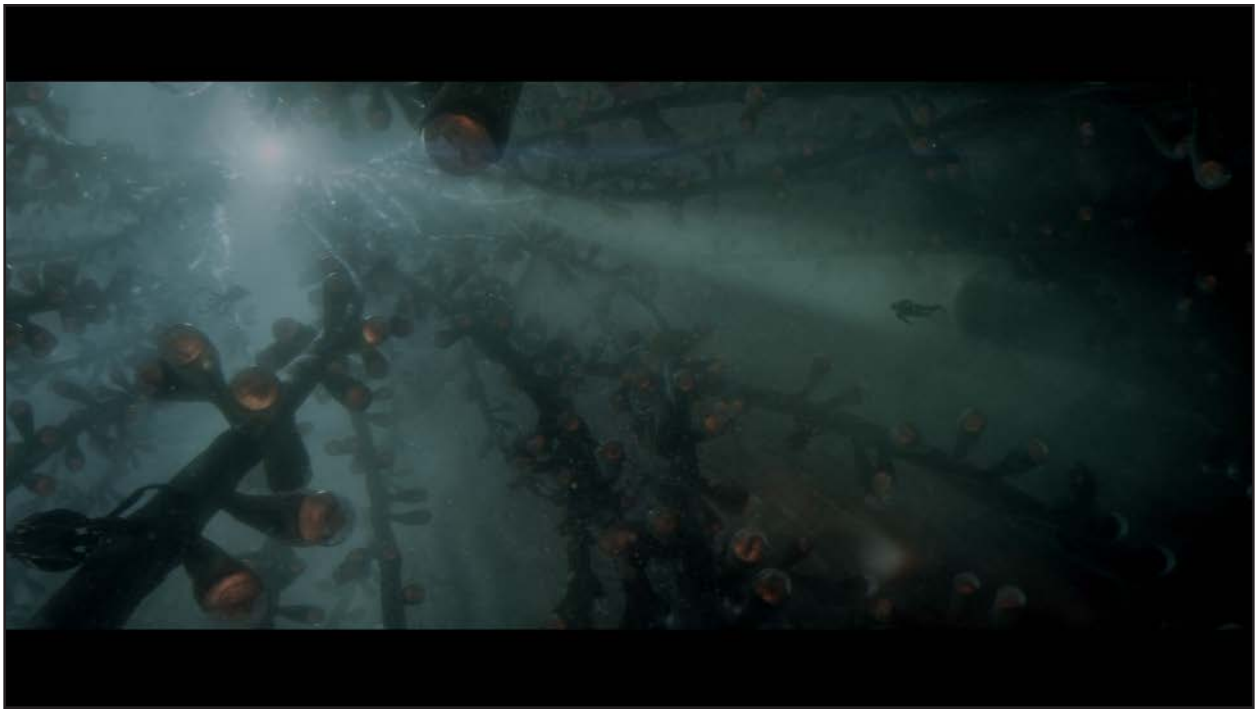
When Russell Crowe looks at the exploded spaceship, the contrast between fire, explosions and dark clouds shows more details.

- On the USB, scenes from 01:11 - 01:14
- On the Blu-ray disc, scenes from 06:02 - 06:05

Before Russell Crowe jumps into the water, detailed fabric pattern of the dark armor reveals and does not blur in the dark armor.

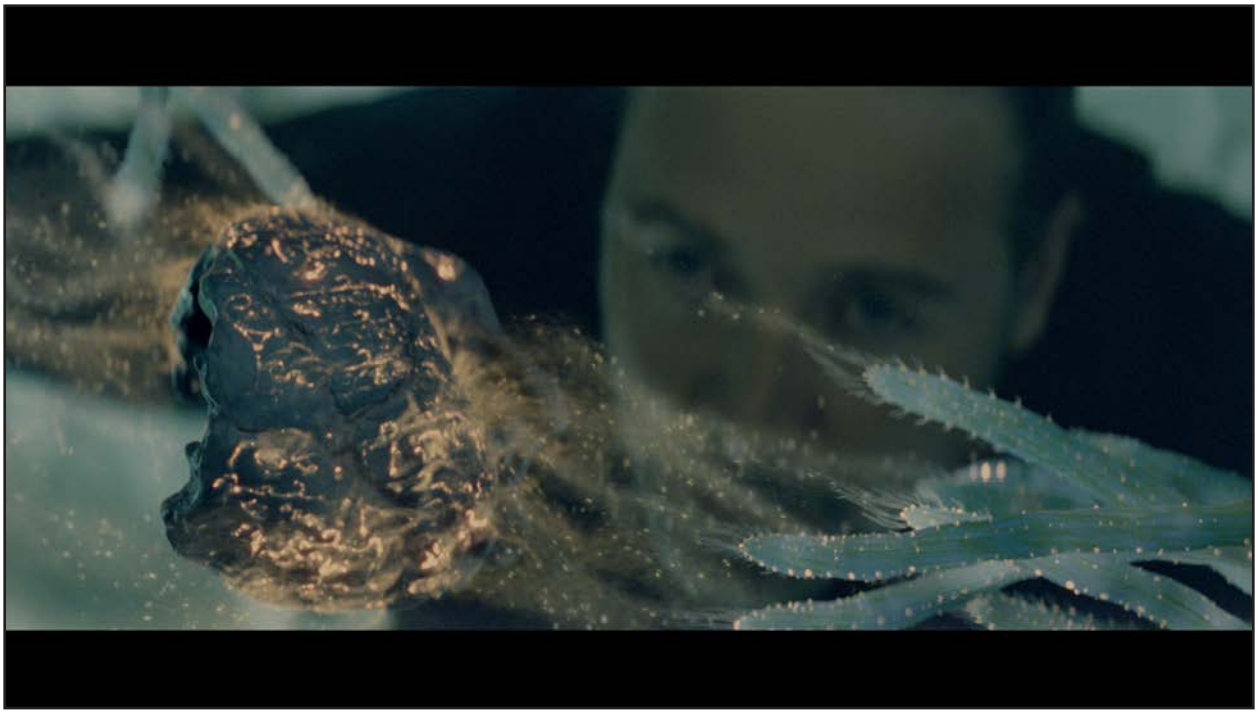
- On the USB, scenes from 01:22 - 01:25
- On the Blu-ray disc, scenes from 06:13 - 06:16

When Russell Crowe swims in the water, the light source keeps in the round shape and does not get washed out. The dark part of the tree branches remains dark, not over exposed.



- On the USB, scenes from 01:47 - 01:52
- On the Blu-ray disc, scenes from 06:41 - 06:44

The color of illuminating spots on the skull is more saturated. See the contrast on neon blue tentacles when the illuminating sparkles flow into the skull.



Play back The Lego Movie movie clip:

1. Connect the USB flash drive with Dolby Vision, HDR-quality content to the Reference Series TV while the TV is turned on.
2. Press the **V** button on the remote control, select **Multimedia** and press **OK**.
3. Select **DolbyVision** and press **OK**.
4. Select **Video** and press **OK.**
5. Select **Lego** clip from the USB flash drive.
6. Press **OK** twice to play back full screen on Reference Series TV.
   Note: Press **OK** to toggle play and pause
7. For comparison, connect a Blu-ray player to the second TV and play back the Blu-ray disc, fast-forward to the matched scenes with provided time codes.
8. Notice the enhanced detail of the Dolby Vision content. You will find a few examples on the following pages.

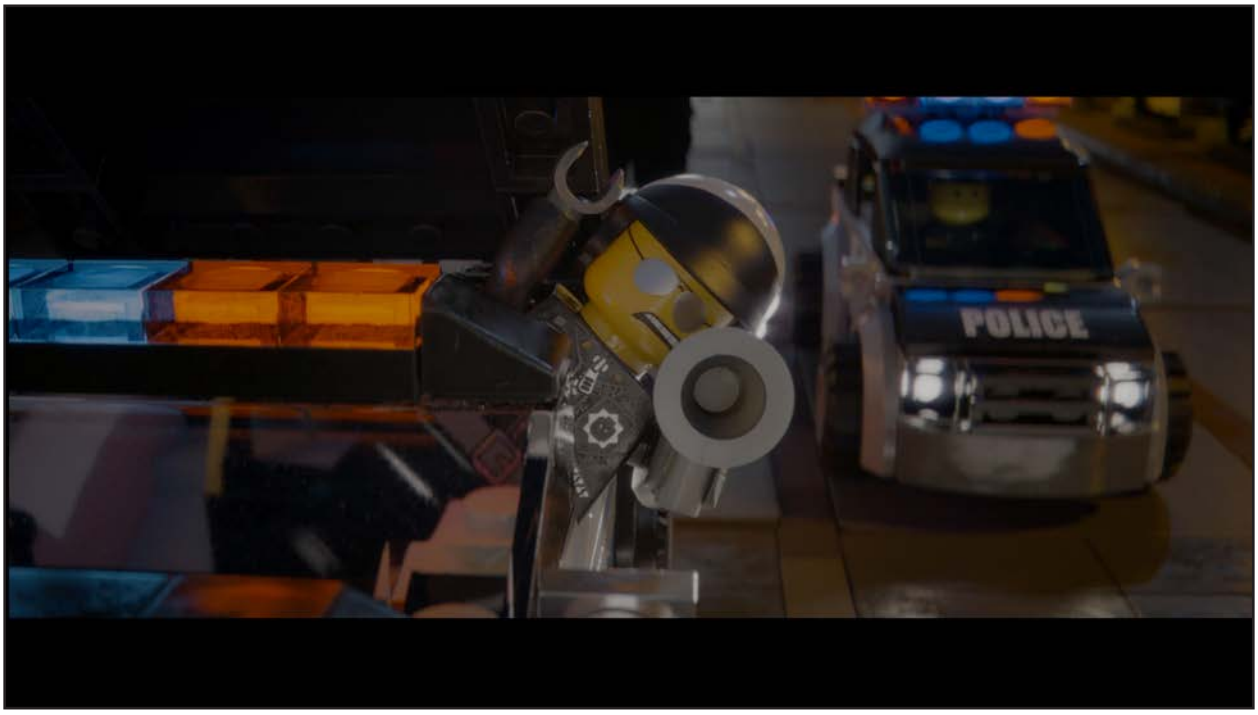
Note: the following screen shots are for scene reference purposes only. Images may not represent the real viewing experience on the TV and do not represent what Dolby Vision content looks like. Materials may not be used for distribution, publicity or promotion.

- On the USB, scenes from 00:21 - 00:24
- On the Blu-ray disc, scenes from 15:26 - 15:29

When Wyldstyle and Emmet on the car being chased by the police cars, the shapes of headlights of their car still remain and do not get washed out by the strong light beams.

- On the USB, scenes from 00:31 - 00:33
- On the Blu-ray disc, scenes from 15:35 - 15:37

The red and blue lights on Bad Cop's police car are more saturated to contrast each other.



- On the USB, scenes from 00:51 - 00:55
- On the Blu-ray disc, scenes from 15:56 - 16:00

Even the light beams are strong, the double rings of the headlights on the helicopter are not blurred out.

Product Support Information

Product Warranty

VIZIO provides a warranty to the original purchaser of a new product against defect in materials and workmanship for a period of one year of non-commercial usage and ninety (90) days of commercial use. If a product covered by this warranty is determined to be defective within the warranty period, VIZIO will either repair or replace the unit at its sole option and discretion. For complete details, visit www.VIZIO.com.

To obtain warranty service, contact VIZIO Technical Support via email: TechSupport@VIZIO.com or via phone at 877-254-8088 from 7:00AM to 11:00PM Monday through Friday and 9:00AM to 6:00PM Saturday and Sunday, Central Time or visit www.VIZIO.com.

Pre-authorization must be obtained before sending any product to a VIZIO Service Center. Proof of purchase in the form of a purchase receipt or copy thereof is required to show that a Product is within the warranty period.

Award-winning Customer Service

VIZIO's US-based product support and customer service team has been recognized for its excellence with 2014-2015 Stevie® Awards. Friendly help with your VIZIO can be found 7 days a week by calling or clicking:

Toll-Free: 877-254-8088

Web: www.VIZIO.com/support

About VIZIO

VIZIO's mission is to deliver the ultimate entertainment experience through our community of connected consumers, advertisers and media content providers. Through our connected entertainment platform, VIZIO is transforming the way consumers discover and experience media content. Since our founding in California in 2002, VIZIO has built an industry-leading brand and sold over 65 million products, including televisions, sound bars and other devices. VIZIO has achieved significant U.S. market share and held the #1 unit share position in the U.S. sound bar industry[1] and the #2 unit share position in the U.S. Smart HDTV industry in 2014[2]. VIZIO product leadership is highlighted by a number of industry reviews and awards including a 2015 CNET Editors' Rating of 4 stars for a review of our E-Series Smart TVs[3], 2015 Editors' Choice award from Reviewed.com for our M-Series 4K Ultra HD Smart TVs[4] and Sound & Vision's Top Picks of 2014 for 42" and 54" Home Theater Sound Bar Systems. For more information, please call 888-VIZIOCE or visit www.VIZIO.com.

[1] The NPD Group/Retail Tracking Service, sound bar units sold in the U.S., January 2014—December 2014.

[2] The NPD Group/Retail Tracking Service, LCD TV units with Apps included and display resolution of 1336 x 768 and higher, total units sold in the U.S., January 2014—December 2014.

[3] Visit cnet.com for the full 2015 VIZIO E-Series Review, published 6/6/15

[4] Visit reviewed.com for the full 2015 VIZIO M-Series Review, published 6/29/15