

Product Information Letter

4K Home Theater Projector

VPL-VW1100ES

Code name: Valkyrie-MC

No. PJ-361

Section 2 , Planning Dept.
VPS Business Div., Professional Solutions Group
Sony Corporation



Issued by

YOSHIFUMI KOIKE

Inspected by

AKIHIRO UDA

Approved by

MITSunORI TAKAHASHI

Product Over View

- Concept
- ✓ **Flagship 4K Home Theater Projector**

- Product



Model	Description	Main target
VPL-VW1100ES (Valkyrie-MC)	4K resolution / 2,000lm / Contrast 1,000,000:1	Home Entertainment

- Sales Points



Evolutional picture quality

- ✓ Super resolution 4K (Over 4x FHD) for immersive experience
- ✓ 2,000lm and Wide color space for vibrant images
- ✓ 1,000,000:1 Dynamic Contrast
- ✓ The latest HDMI standard: 4K 60p (YUV 4:2:0 / 8 bit) interface equipped

Installation friendly

- ✓ Throw ratio 1.27:1 to 2.73:1 / 2.1x powered zoom
- ✓ Vertical 80% / Horizontal 31% Lens shift
- ✓ Home automation interface “2 Triggers”, “IR-IN” “232C” and “RJ-45”

User friendly

- ✓ 5 Picture position memory for variety aspect movies
- ✓ Built in 3D transmitter
- ✓ Whisper-quiet fan 23dB

Change of Specification from VPL-VW1000ES

	VPL-VW1100ES	VPL-VW1000ES
Resolution	4K (up to 4096/60p)	4K (up to 4096/24p)
Brightness	2,000lm	2,000lm
Dynamic Contrast	1,000,000:1 (w/Iris)	1,000,000:1 (w/Iris)
Reality Creation	YES w/ “Mastered in 4K”	YES
Lens shift	V \pm 80% H \pm 31%	V \pm 80% H \pm 31%
Throw ratio (16:9)	1.35 – 2.73	1.35 – 2.73
Interface	HDMI x 2 (4K 60p YUV 4:2:0 / 8 bit) / Component / D-sub 15	HDMI x 2 (up to 4096/24p) / Component / D-sub 15
Noise	23dB (due to CPU fan voltage up)	22dB
Dimensions (w/o protrusion)	520 x 200 x 640	520 x 200 x 640
Mass	20 kg	20 kg

Applications

Cinema
Sports
Home made video
Game



Photo



*PlayMemories: Please refer information which has been already provided separately. To be available soon (Except China)

Design

- **“Cool” and “Functional”**
- **Lens Protector**
- **Interfaces**

Design

“Cool” and “Functional”

Pursued not only to show the characteristic but high-dimensional
balance the “Cool design” and “Functionality”



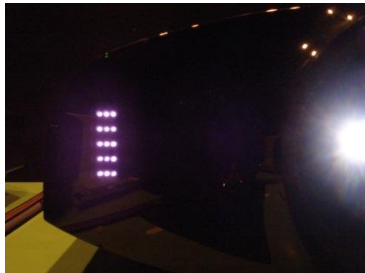
“Cool” and “Functional”

- Glossy mask and rear grill for high-grade appearance
- Matt black surface to cancel light reflection

4K precision lens



Built-in 3D transmitter



Intake grill



Unobtrusive terminals



Exhaust grill



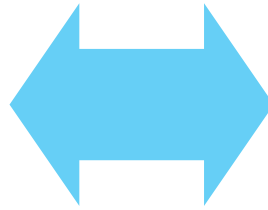
Top access for lamp

Design

Lens Protector

- Open/Close automatically
- Keeps dust off of the lens

Automatically Open/Close the lens protector synchronized with projectors turning On/Off.



Design Interfaces

VPL-VW1000ES/VW1100ES



VPL-VW95ES



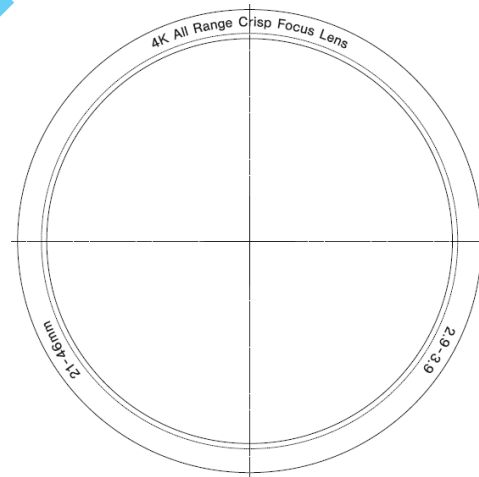
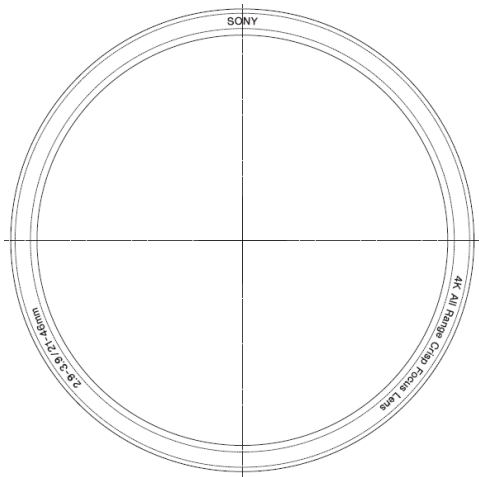
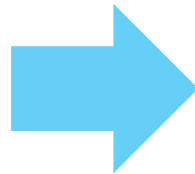
New

Same remote commander as VPL-VW1000ES

Logos



Engraved mark for lens to be changed from around 2012 Q1 as below



Only North America



Sales Points

- **Revolutionary Picture Quality**

- ✓ 4K Resolution
- ✓ 2,000 lm for Vibrant Images
- ✓ Deep Black by SXRD
- ✓ 1,000,000:1 Dynamic Contrast
- ✓ Wide Color Space
- ✓ New Lens Technology “4K ARC-F Lens”
- ✓ Panel Alignment Expertise
- ✓ “Reality Creation” 4K Up-scaling with “Mastered in 4K” database
- ✓ 4K super-resolution 3D
- ✓ The latest HDMI standard: 4K 60p (YUV 4:2:0 / 8 bit) interface equipped

- **Installation Advantages**

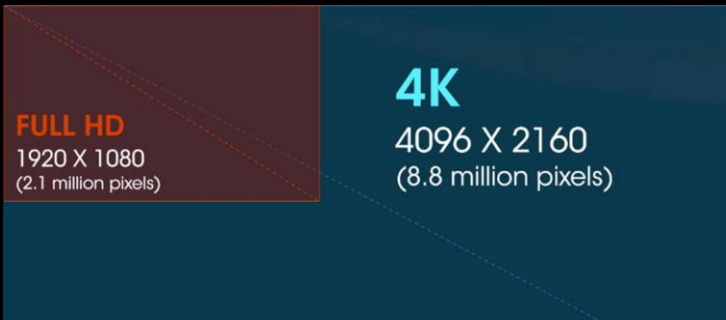
- ✓ Well considered Throw Ratio / Flexible Lens Shift
New Test Pattern / Panel Alignment Function
- ✓ Home Automation Interface Control

- **User-friendly**

- ✓ Anamorphic compatibility
- ✓ Powerful Picture Calibration Features

4K Resolution

4K refers to a resolution of 4096 pixels horizontal x 2160 pixels vertical (DCI based). This is slightly more than four times the pixels of Full HD (1920 x1080). 4K is less screen door and jaggies for a truly immersive experience.



Full HD
1080



4K



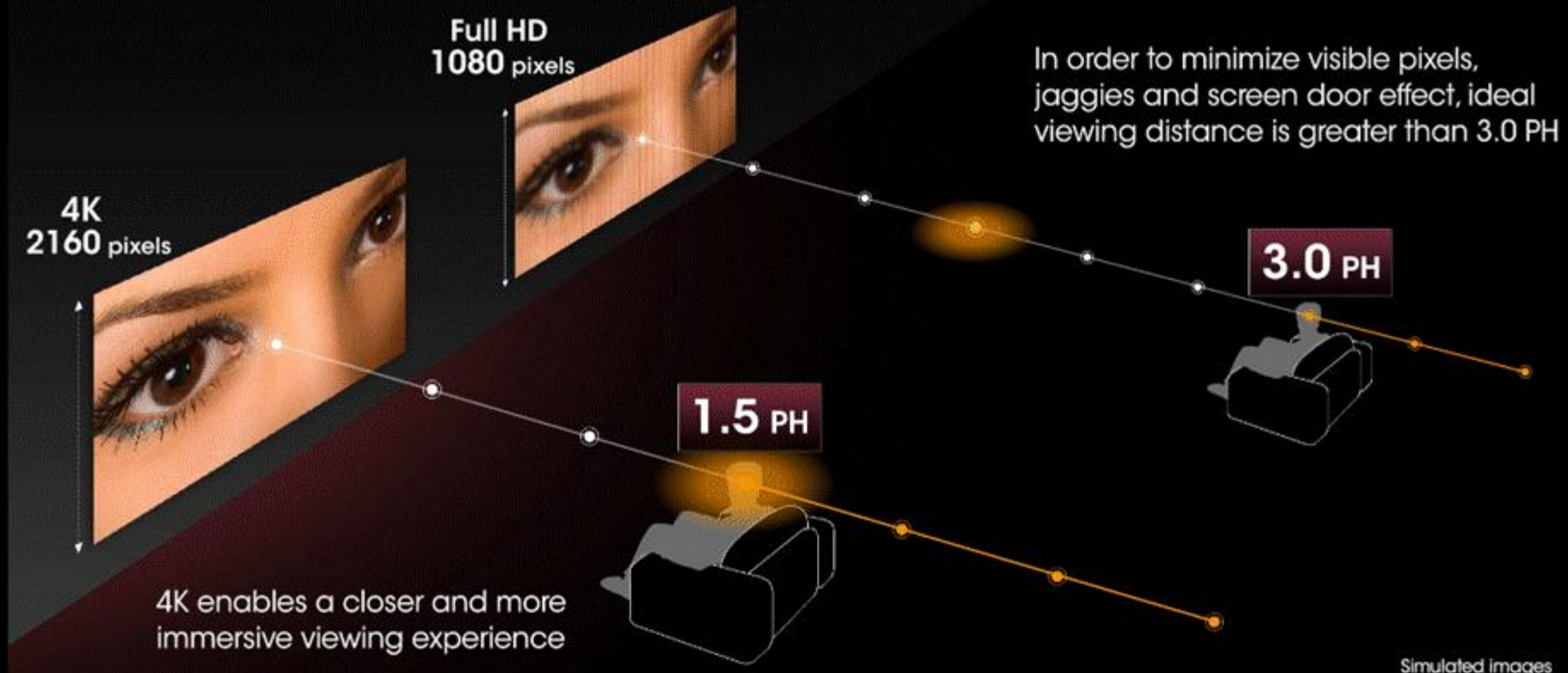
Revolutionary Picture Quality

4K Resolution

4K projection enables you to sit close to the screen and still retain the illusion of seamless, continuous picture.

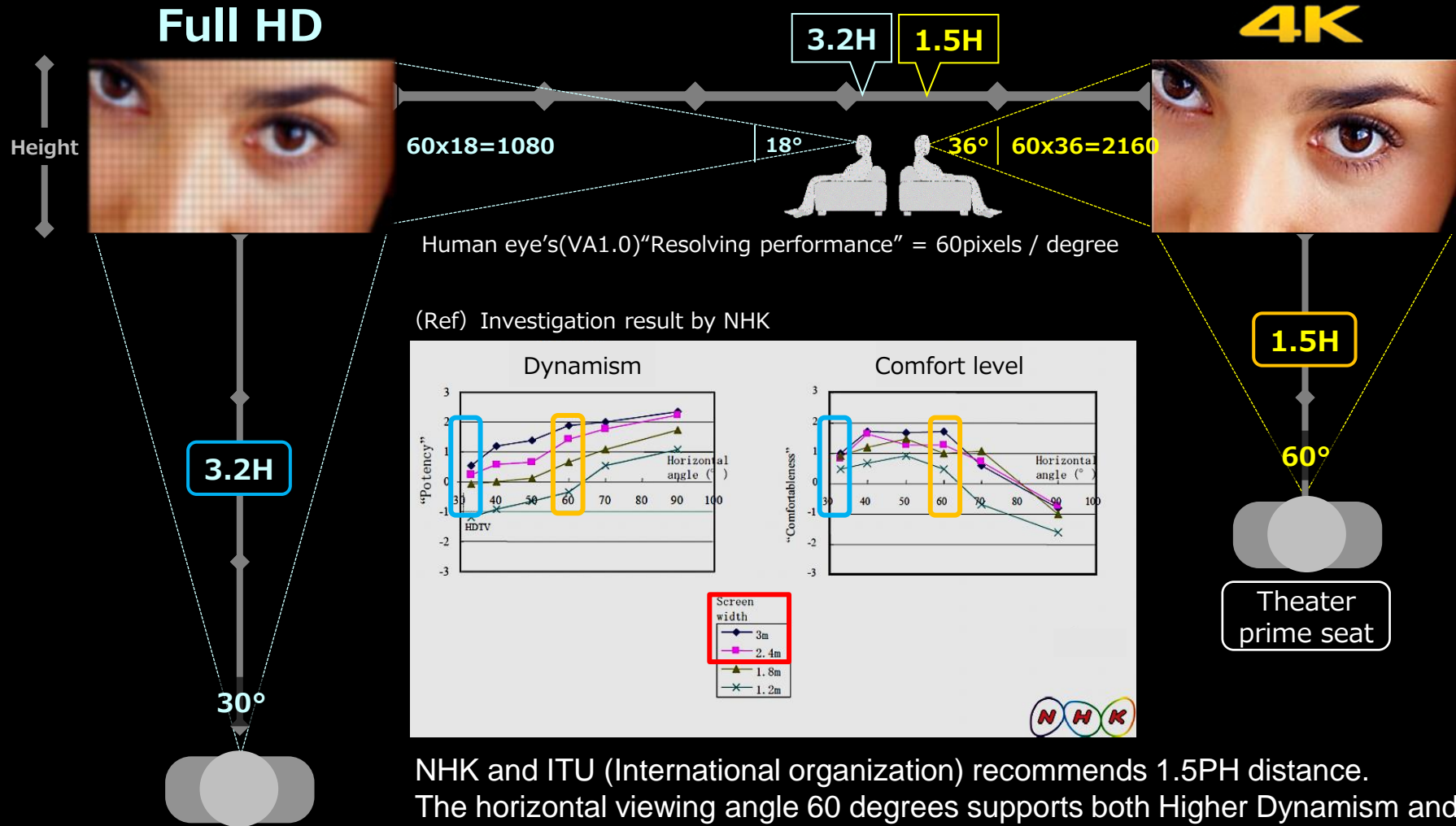
As you sit closer, you become more immersed in the visual experience.

Larger Screens, Closer Seating



Simulated Images

About Best Viewing Position



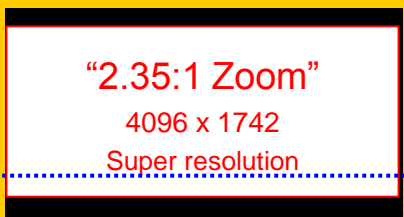
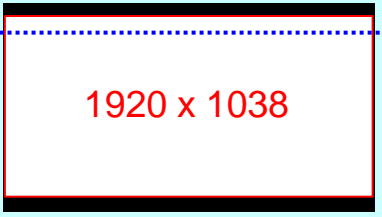


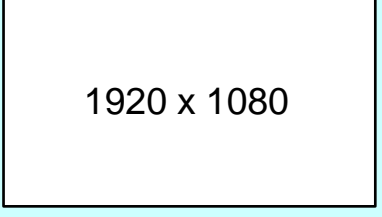
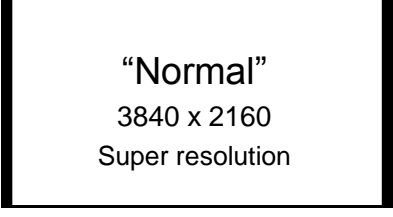
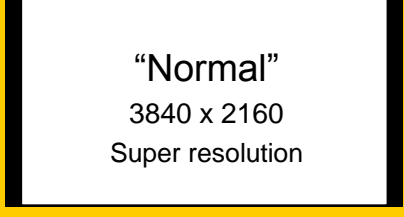
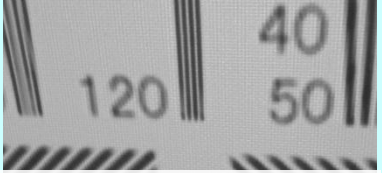
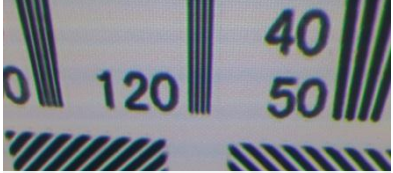



NHK and ITU (International organization) recommends 1.5PH distance. The horizontal viewing angle 60 degrees supports both Higher Dynamism and Comfort level. And 4K x 2K pixels doesn't make eyes feel pixel sensitivity.

Optimal DCI aspect for Cinema contents

The reason why we use not 3840 x 2160 but 4096 x 2160 is the 17:9 panel is based on DCI specification that is cinema friendly.

“ ” is Aspect mode

Contents	Format	16:9 (1920x1080)	16:9 image in 17:9 panel	DCI 17:9 Optimized
Cinema	Cinema Scope 2.35 : 1	 <p>1920 x 817</p>	 <p>“Normal” 3840 x 1634 Super resolution</p>	 <p>“2.35:1 Zoom” 4096 x 1742 Super resolution</p>
	American Vista 1.85 : 1	 <p>1920 x 1038</p>	 <p>“Normal” 3840 x 2075 Super resolution</p>	 <p>“1.85:1 Zoom” 3996 x 2160 Super resolution</p>
TV Game	HDTV 1.78 : 1	 <p>1920 x 1080</p>	 <p>“Normal” 3840 x 2160 Super resolution</p>	 <p>“Normal” 3840 x 2160 Super resolution</p>
Sample Pictures Somebody believes HD panel is better for HD contents or quad pixel (3840) is better quality for upscaling. But actually quad pixel is not related with the picture quality when use super resolution.		 <p>“Full” Hazy and Visible pixels</p>	 <p>“Normal” with super resolution</p>	 <p>“2.35:1 Zoom” Brighter and Higher Reso.</p>

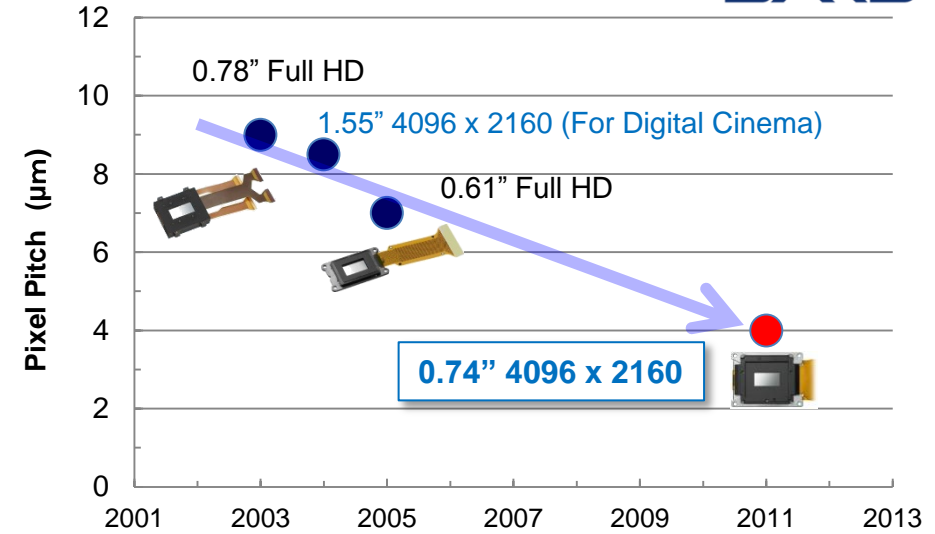
Black bars are minimized

Newly developed 4K SXRD panel



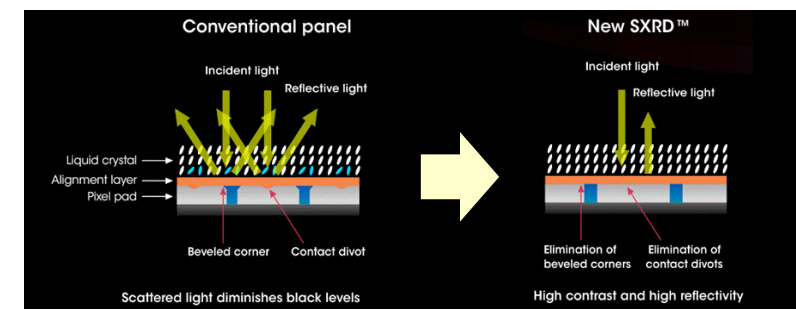
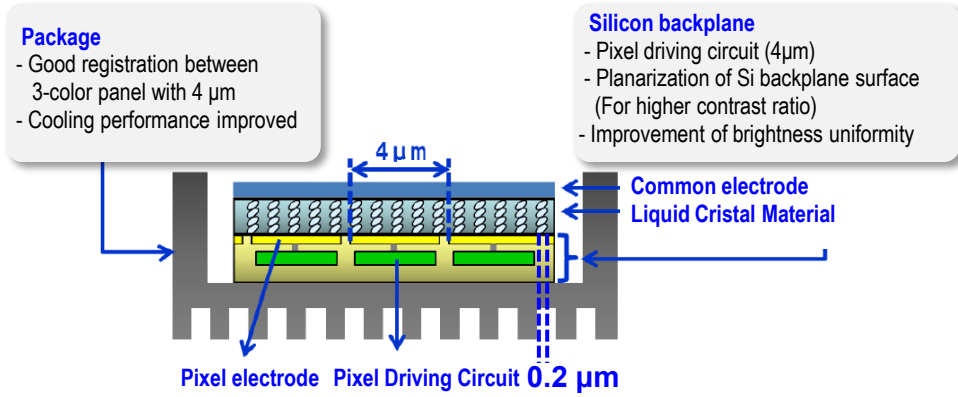
Specifications	
Display Device	SXRD (Silicon-X-tal Reflective Display)
Display Size (Diagonal)	0.74" (18.8mm)
The number of pixels	4,096 x 2,160
Pixel Pitch	4 μm
Inter-Pixel Space	0.2 μm
Aperture	90%
LCD Mode	Vertical Alignment
Alignment Layer	Inorganic Alignment Layer
Driver Element	0.18 μm MOS Process
Cell Gap	Less than 2 μm
Gradation Characteristics	12 bit
Frame Rate	120Hz

SXRD development History



Changed points

- Digital Driving
- Improved contrast by further flattening



Revolutionary Picture Quality

2,000 lm For Vibrant Images

Thanks to high wattage 330W Ultra High Pressure Lamp (UHP).

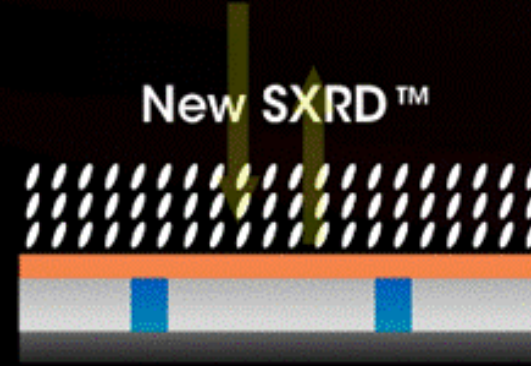
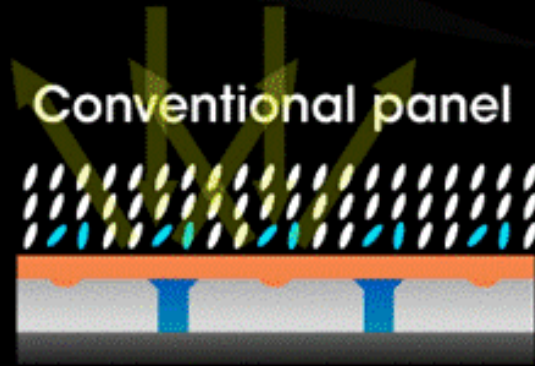
- Supports larger screens
- High brightness for a variety of installation environments



Revolutionary Picture Quality

Deep Black by New SXRD

Thanks to further flattening process, improved black reproduction.



Revolutionary Picture Quality

1,000,000:1 Dynamic Contrast

The combination of the advanced “SXRD” and “Dynamic Iris Control” achieved broadest dynamic range.

Deliver optimum contrast in any viewing environment

VPL-VW1100ES

Native contrast with fixed iris

Dynamic contrast with advanced iris

Brightness

Low

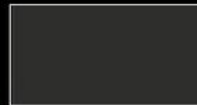
High

Open

Close

2000

1000



Simulated images

Combination Algorithm for Advanced Iris3

1. Dynamic Iris Control

And also Iris moves dynamically in synchronization with each pictures.

2. Electrical Dynamic Control

Using "Histogram Detection" and "Linear amplification control".

Firstly detect primal data electrically, then optimize gamma curve in real time.

Dynamic Iris Control



Conventional



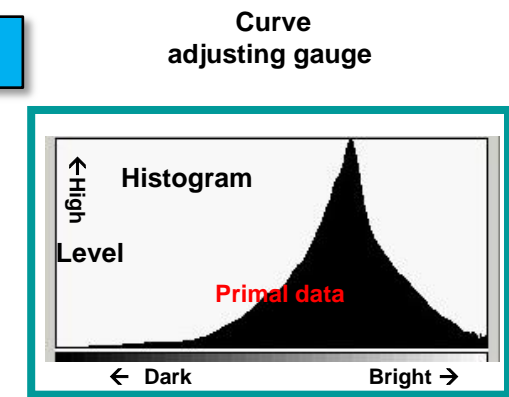
Less Peak Brightness

Advanced Iris3

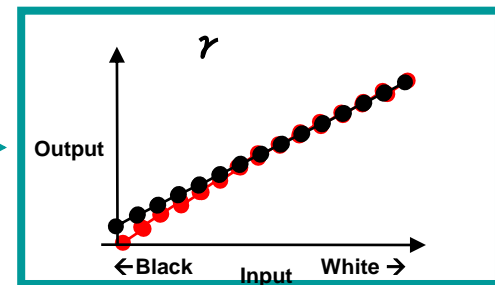
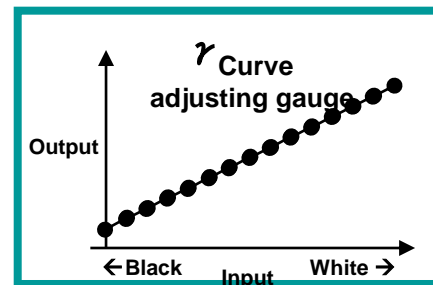


Keep the Peak Brightness

Electrical Dynamic Control



Curve adjusting gauge

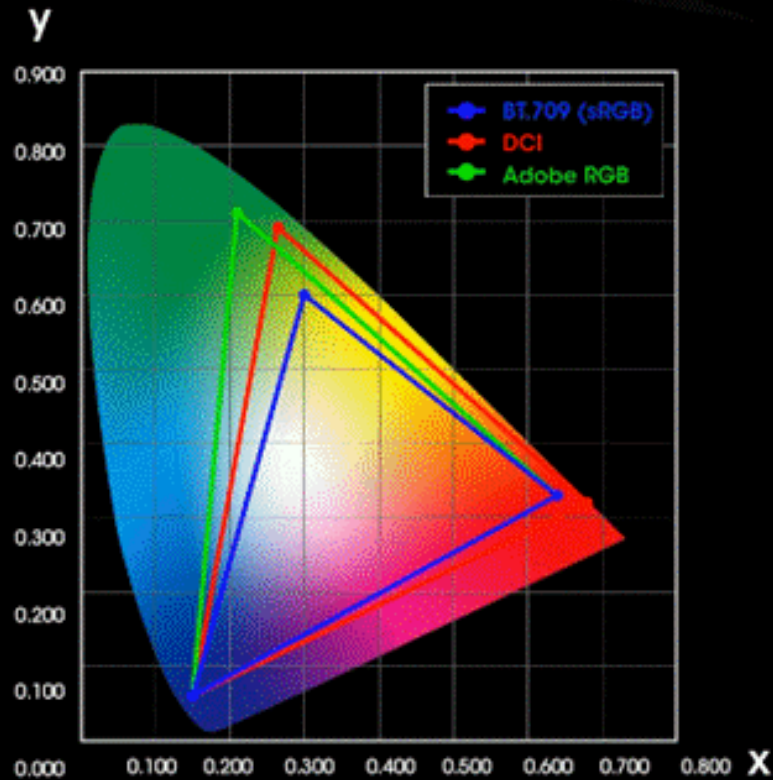


Revolutionary Picture Quality

Wide Color Space

The combination of the newly developed “Optical system” and the high wattage “UHP Lamp” fully covers DCI color gamut.

For accurate color reproduction



For cinema



BT.709 (sRGB)



DCI

For photos



BT.709 (sRGB)



Adobe RGB

Breathtaking Picture Quality

TRILUMINOS™ Display

- ✓ Enjoy pure, bold colors that evoke all the scene's emotion
- ✓ Hard-to-reproduce reds and emerald greens are richer, more vivid and intense; faces & skin tones are more natural
- ✓ Get stunning results by connecting with Sony's digital cameras and camcorders compatible with TRILUMINOS™ Color



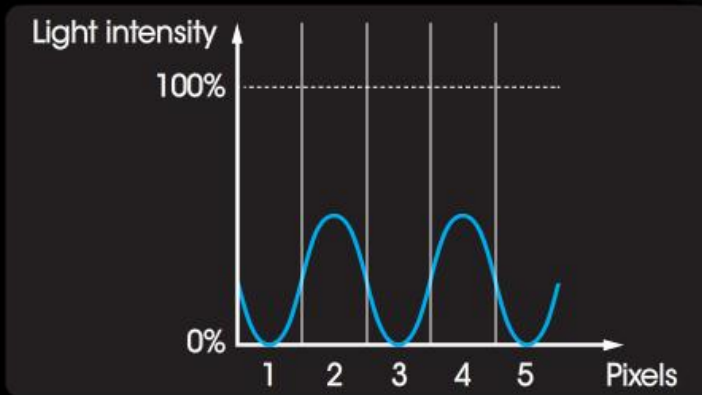
Revolutionary Picture Quality

New Lens Technology “4K ARC-F Lens”

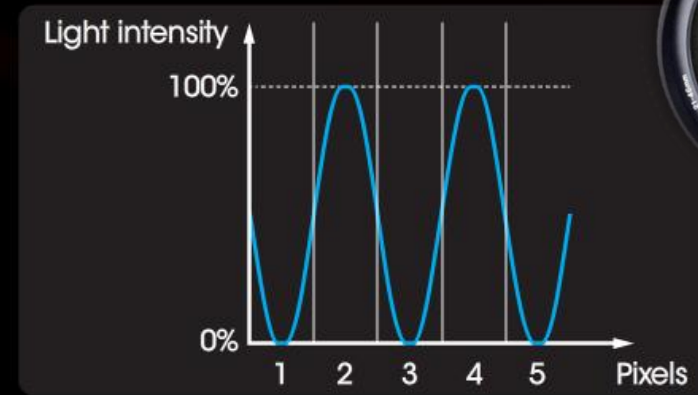
By incorporating super high resolution lens, realized high precision and high quality picture in every corners

High resolving power

Conventional lens



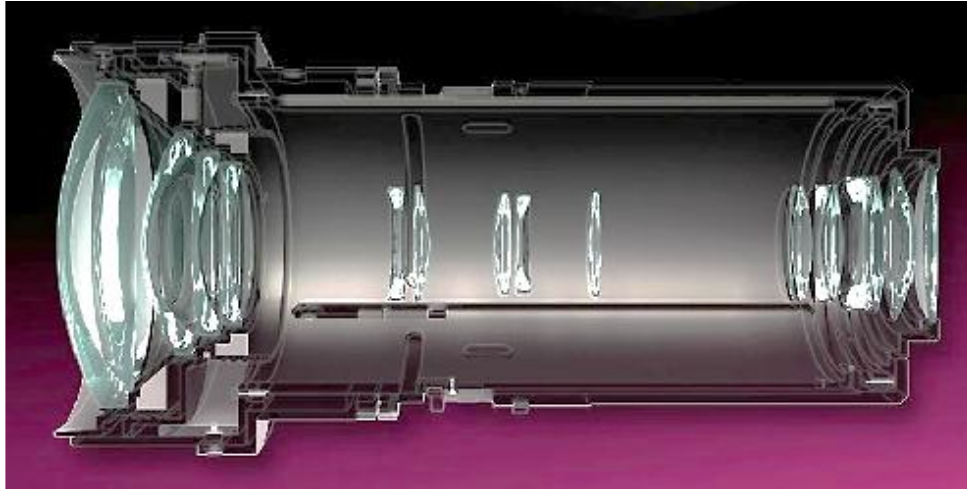
4K ARC-F lens



High precision and high quality picture is realized in every corner of the image

Structure of the 4K ARC-F Lens

Outline



Lens structure	15 gr. / 18 pcs.
Throw ratio	1.27- 2.73:1
Lens shift range	V:+-80% / H:+-31%
Aperture	f/2.9 to 3.9
Focal length	21.3mm – 46.2mm
Projection size	60" – 300" (diag.17:9)
Outside diameter x Length	φ118 x 248mm

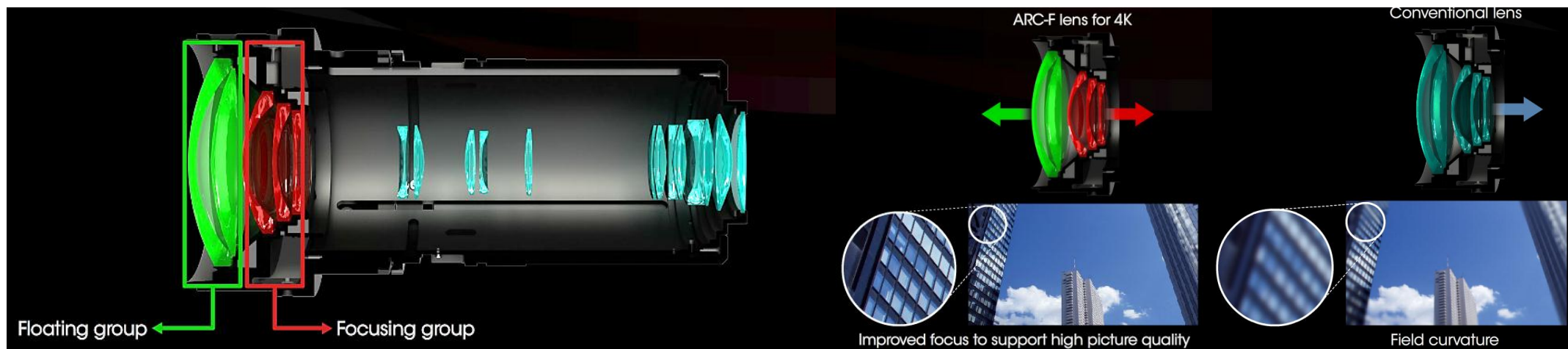
We brought in several engineering technology in optical and mechanical designing, to resolve panel's picture information seamlessly on the whole of screen. We are using 18pcs lens like for 4K digital cinema, floating focus system and large-bore Extra low dispersion glass.

In addition, with our rich experiences, executed precise simulation to strictly minimize ghost effect and margin of manufacturing.

Also at production facility, we use large-bore lens production technology and coating technology, similar to 4K Digital Cinema.

Structure of the 4K ARC-F Lens

1. Floating Focus method

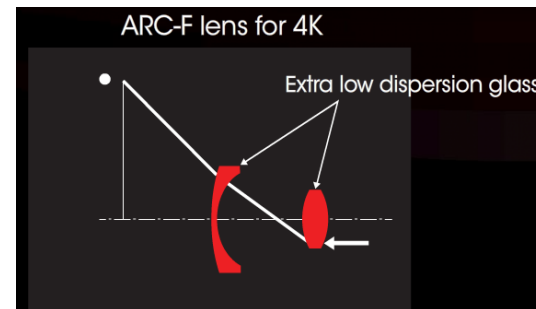
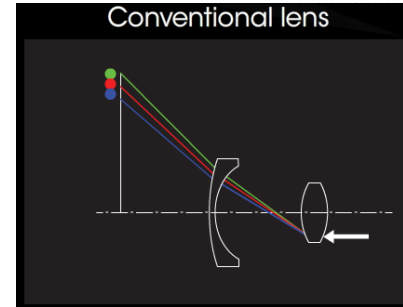


When focusing, it is popular to move a lens group which is closest to screen, however in this case, due to the movement of focusing lens group, inflection will occur.

This time, we set floating lens group to correct image inflection to the opposite side, by moving it simultaneously with focusing lens group, realized high stable image performance from the center to the corners without any distortion, also for both near and far distance projection.

Structure of the 4K ARC-F Lens

2. Extra low dispersion glass



In case to use conventional optical lens (normal glass), there is color deviation of blue and red light against green on the screen, since comparably wide-angle lens used for projector makes big light reflection.

To avoid the color deviation, need to use the lens which have more reflection rate for blue and red light compared with normal glass. This lens is called ED (Extra low dispersion) glass.

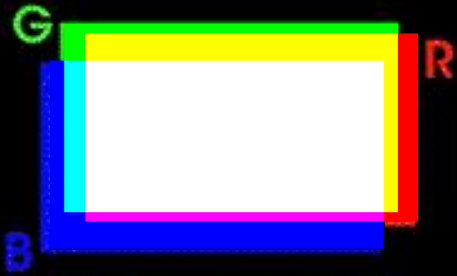
This time, we are using ED glass 3pcs positive lens at panel side and 3pcs negative lens at screen side, and reproducing $4\mu\text{m}$ pitch image with nearly no color deviation within all zoom range.

Revolutionary Picture Quality

Panel Alignment Expertise

Sony has accumulated expertise to produce precise convergence of the three RGB color pictures. And manual adjustment function is also available for the flexibility.

Low precision model



VPL-VW1100ES

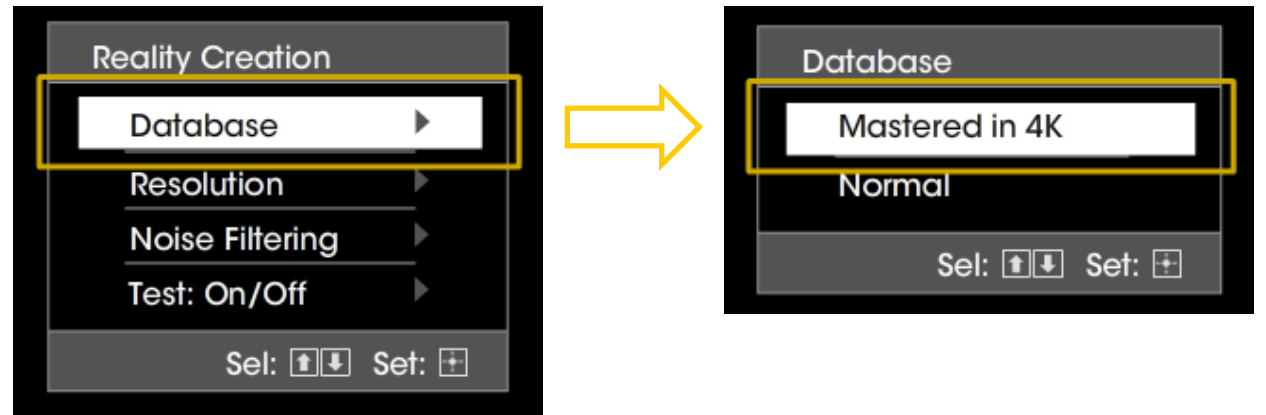
with precision alignment



Two Modes of “Reality Creation” Database

Introduce “Mastered in 4K” mode designed for “Mastered in 4K” BD by SPE
Faithful reproduction to original master in combination with “Mastered in 4K” BD

Reality Creation Database	VPL-VW1000ES	VPL-VW1100ES
Normal	YES	YES
“Mastered in 4K”	-	YES



Revolutionary Picture Quality

“Reality Creation” 4K Upscaling

Dramatically enhances all content (SD/HD, 2D/3D), allowing viewers to see 4K playback, even from their existing media libraries.

See extreme clarity in every pixel



Full HD Panel

Full HD Signal



4K Panel

Full HD Signal with
"Reality Creation"

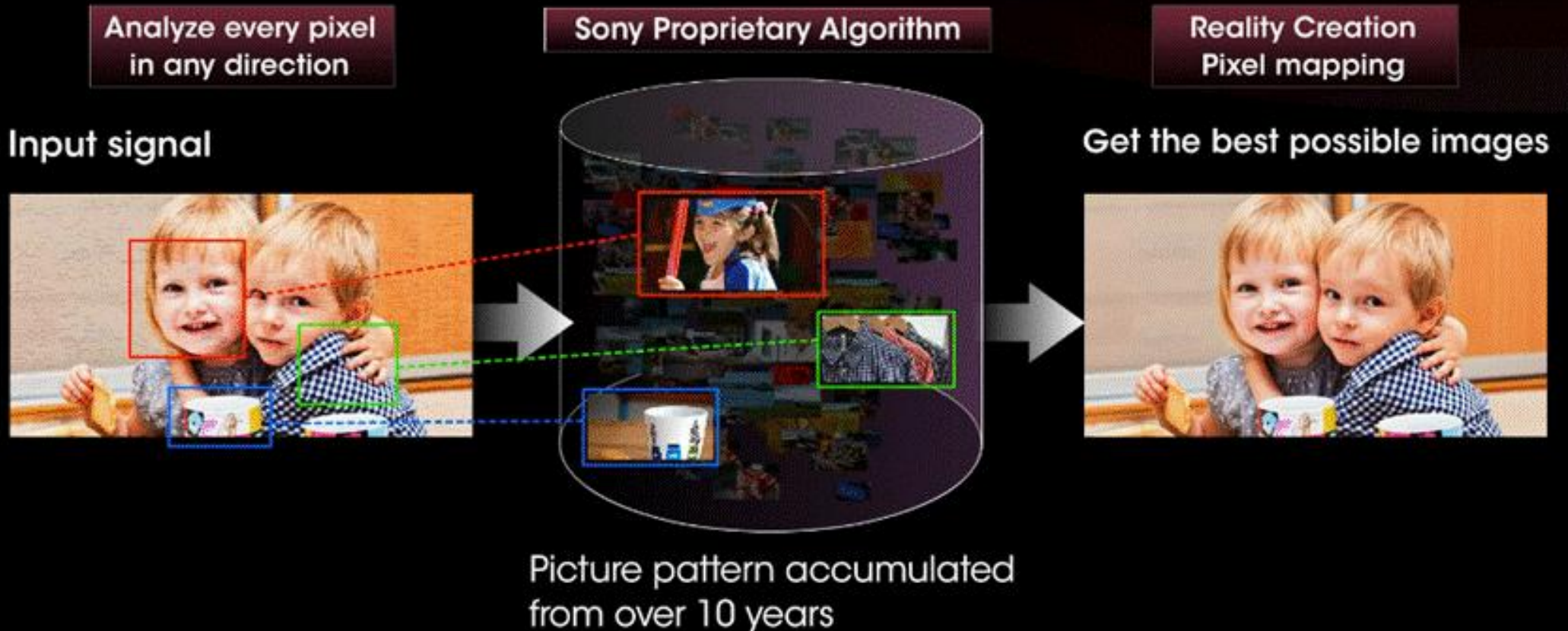
Reduced screen door effect and jagged edges

Revolutionary Picture Quality

“Reality Creation” 4K Upscaling

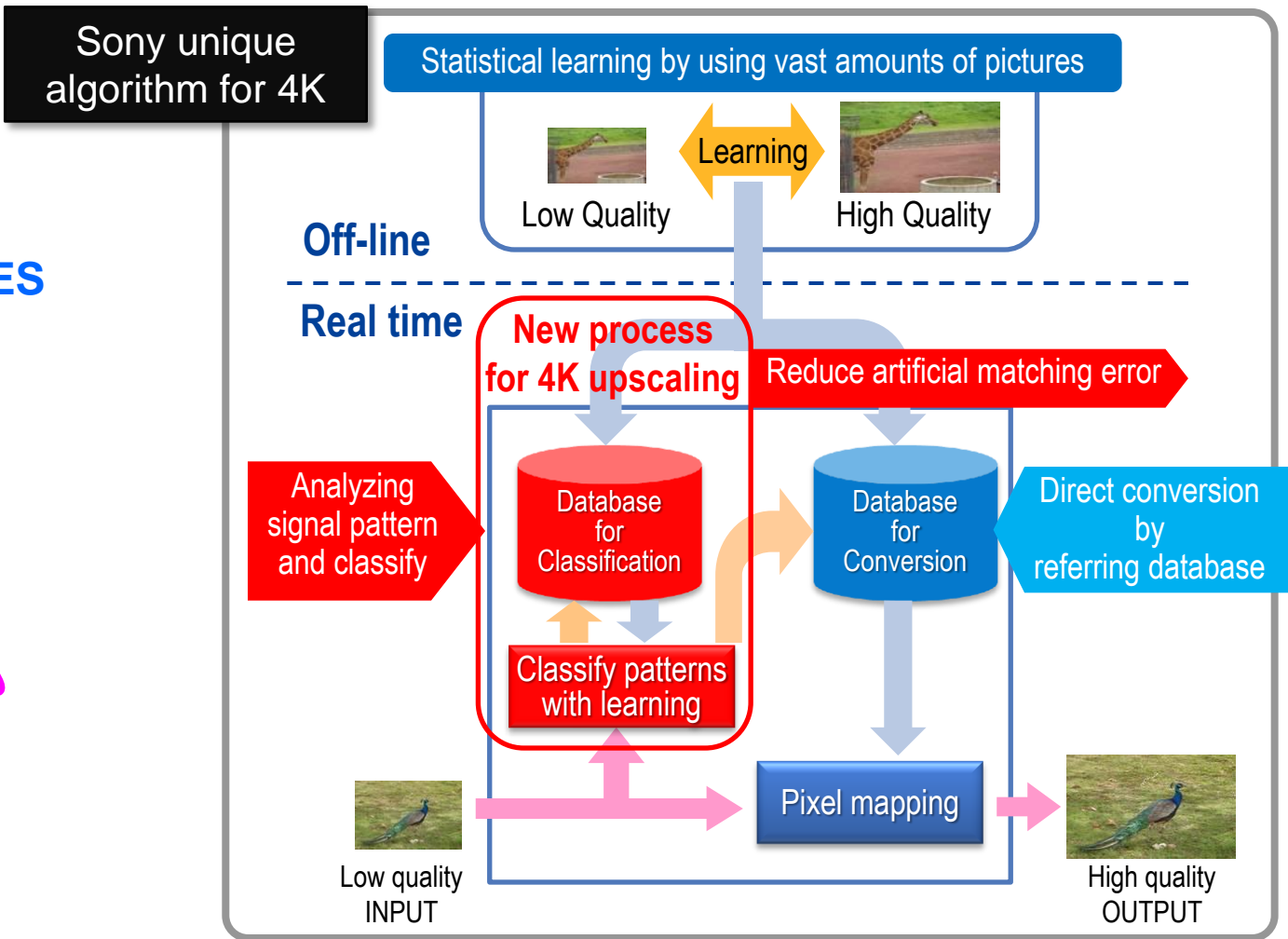
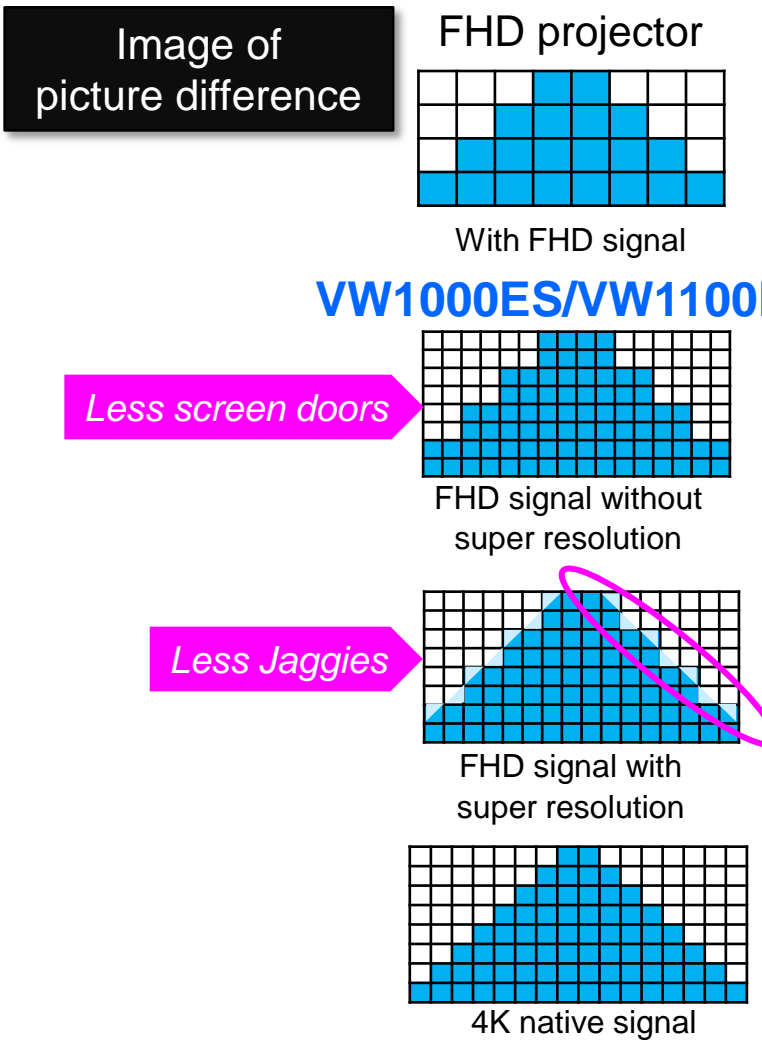
Fully utilizing and progressing technology assets cultivated over the decade, and optimized algorithm and parameter to match 4K display device

See extreme clarity in every pixel



4K super-resolution algorithm

Not only upscale to upper resolution but also reproduce lost signal when transmitting. The quite smart algorithm distinguishes noise from intended pixel.

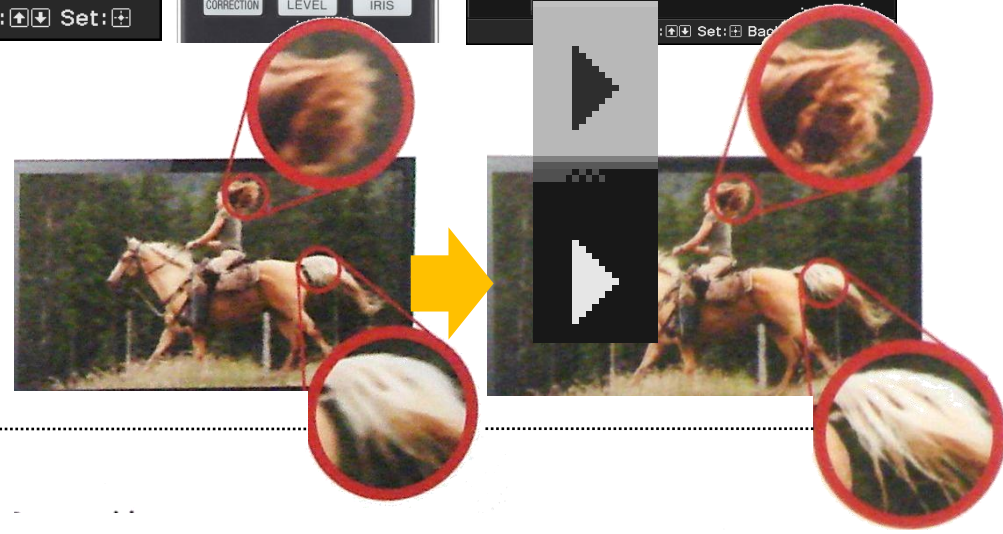
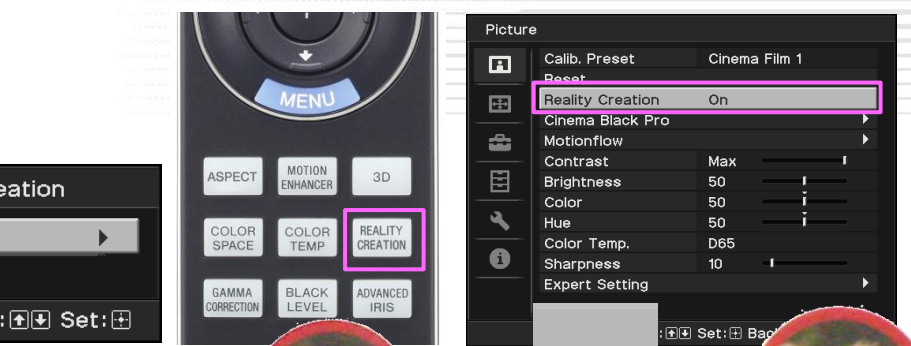
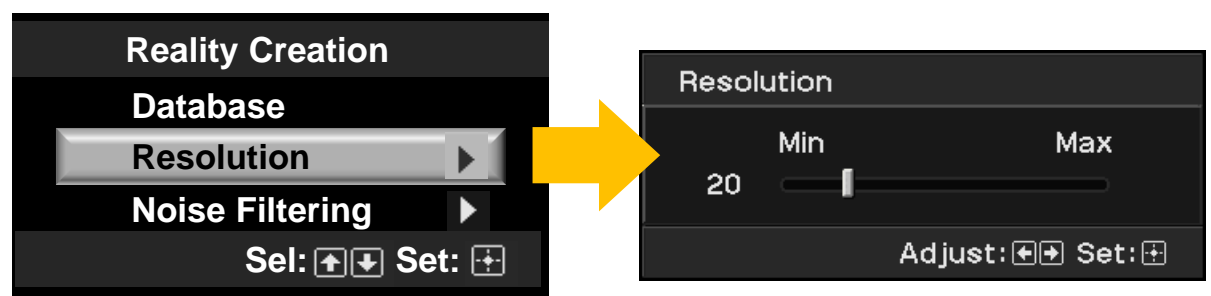


Reality Creation Function

VW1100ES has two effects for the Super-Resolution

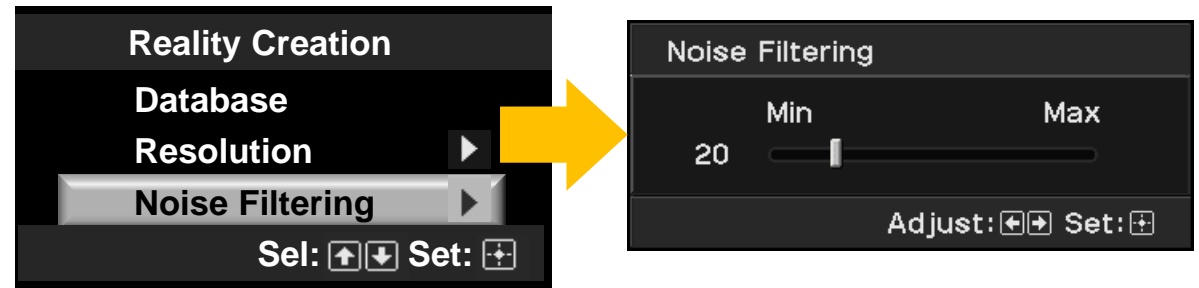
Resolution

Adjust Super-Resolution level



Noise Filtering

Change adjustable level of super-resolution



Breathtaking Picture Quality

Production & Up-Scaling of “Mastered in 4K” Blu-ray Discs

Sony Pictures Entertainment releases higher quality Blu-ray discs “Mastered in 4K” titles

With the utilization of the same algorithms of down-converting to realize faithful reproduction to original master file for near 4K experience

4K Scan



Mastering



4K Camera



Color grading 4K finish

Master file (4K)



4K up-scaled picture



Down-conversion

Same filter

Up-scaling

Faithful reproduction to original master



‘Mastered in 4K’ Blu-ray Disc™ (2K)

The Amazing Spider-Man™ now available on Blu-ray Disc™
The Amazing Spider-Man © 2012 Columbia Pictures Industries, Inc. All Rights Reserved.
| Marvel, and the names and distinctive likenesses of Spider-Man and all other Marvel characters:™ and © 2013 Marvel Entertainment, LLC & its subsidiaries. All Rights Reserved.

Simulated images

Breathtaking Picture Quality

4K 60p (YUV 4:2:0 / 8 bit) interface equipped

Get ready for playing back 4K 60p (YUV4:2:0) signals only by single HDMI cable.

4K Resolution	Frame rate	VPL-VW1000ES	VPL-VW1100ES
3840 x 2160	24p	Y	Y
	25p	Y	Y
	30p	Y	Y
	50p	N	Y (YUV 4:2:0 / 8 bit only)
	60p	N	Y (YUV 4:2:0 / 8 bit only)
4096 x 2160	24p	Y	Y
	25p	N	Y
	30p	N	Y
	50p	N	Y (YUV 4:2:0 / 8 bit only)
	60p	N	Y (YUV 4:2:0 / 8 bit only)

Revolutionary Picture Quality

4K super-resolution 3D

VPL-VW1000ES/VW1100ES are the only 3D provider for absolutely real and immersive experience.

The breathtaking pictures invite you into the real world!

3D world

Created by Sony



Frame-sequential display with Active glasses

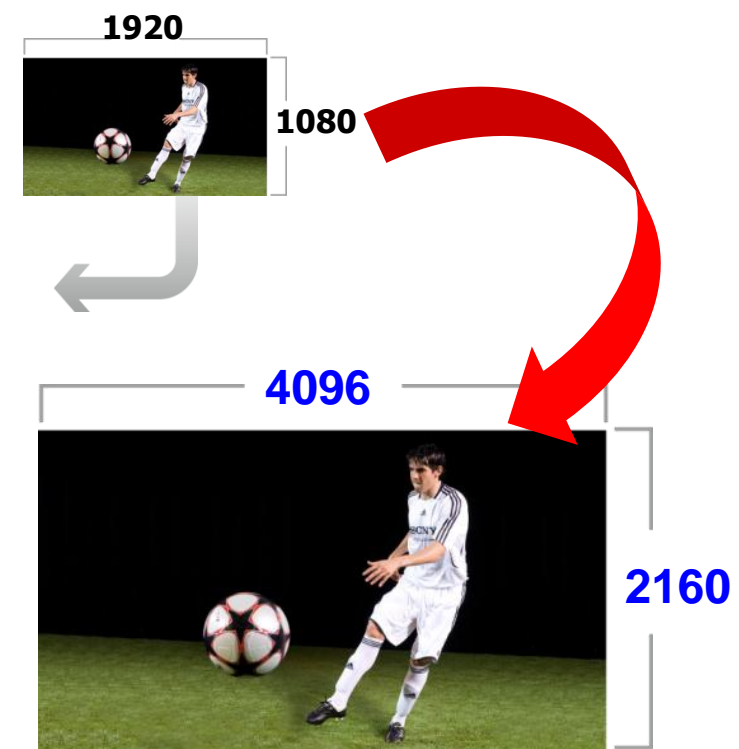
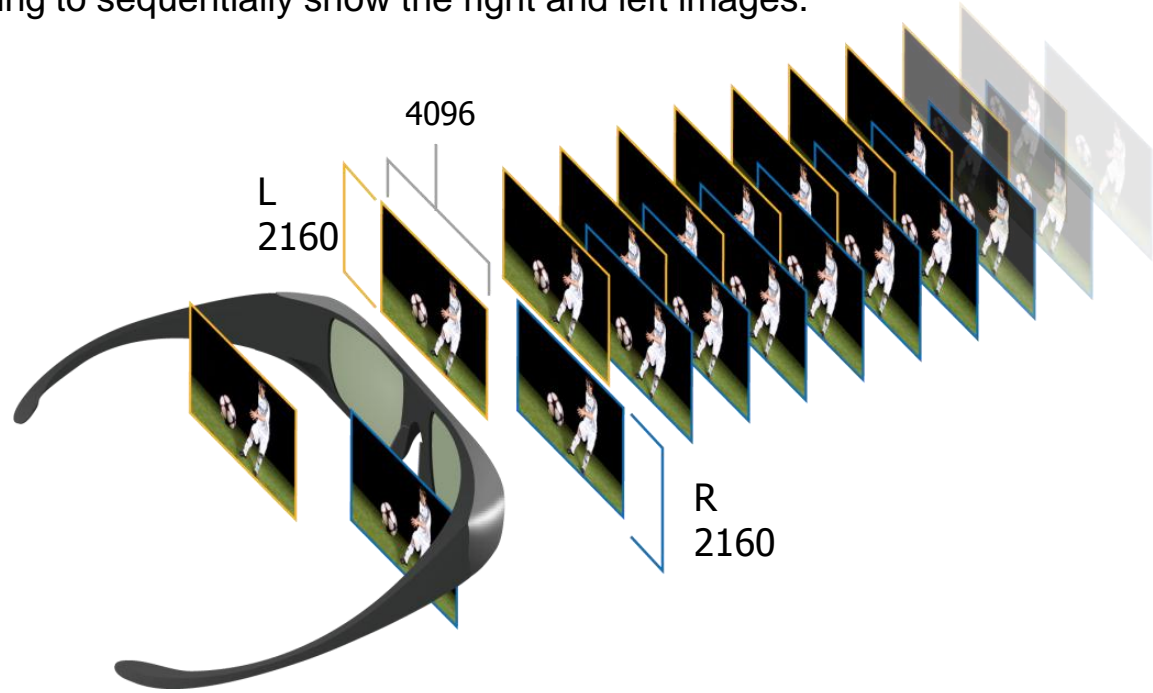
-Frame-sequential display method

VW1000ES/VW1100ES has frame-sequential display system both left and right images have full resolution.

*Passive type reduces resolution by half

-Active glasses method

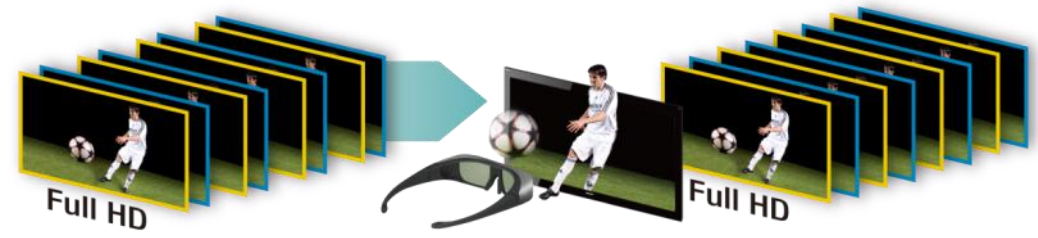
When receive the 3D signal, liquid-crystal and active glasses are synchronizing by shuttering to sequentially show the right and left images.



Multiple 3D formats are compatible

2HD method Requires a high bandwidth, but can display 3D video in Full HD.

Frame Packing
BD, Game



at Frame-sequential display

1HD method Transmission can be supported with a relatively low bandwidth, but 3D video is displayed at half resolution.

Side-by-Side
Broadcast



at Frame-sequential display

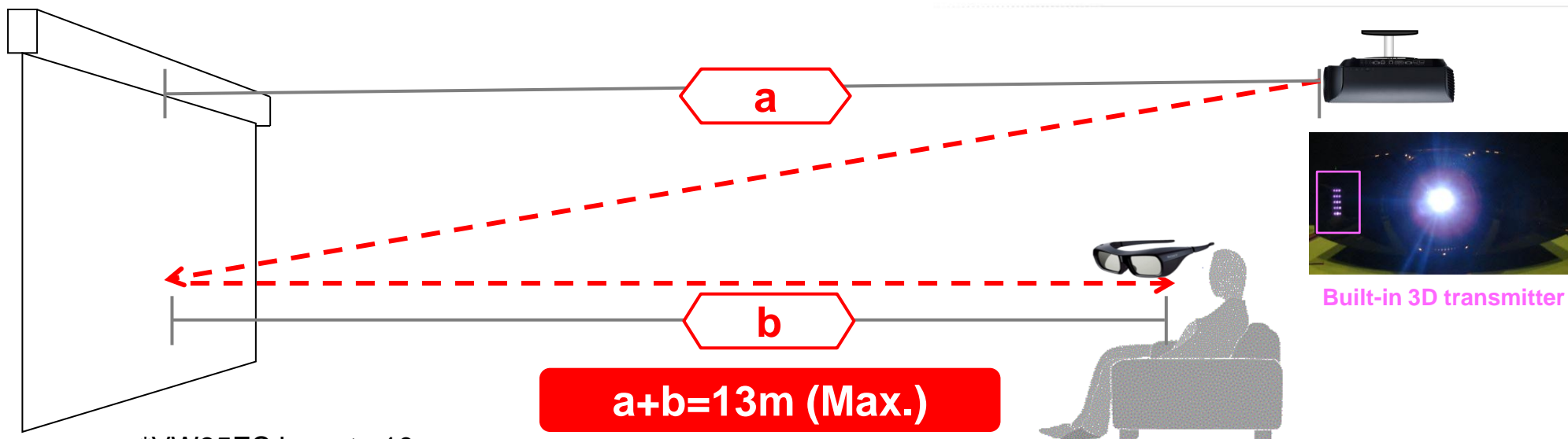
Over-Under
Broadcast



at Frame-sequential display

Built-in transmitter coverage

VW1000ES/VW1100ES Built-in transmitter output is 30% stronger than VW95ES



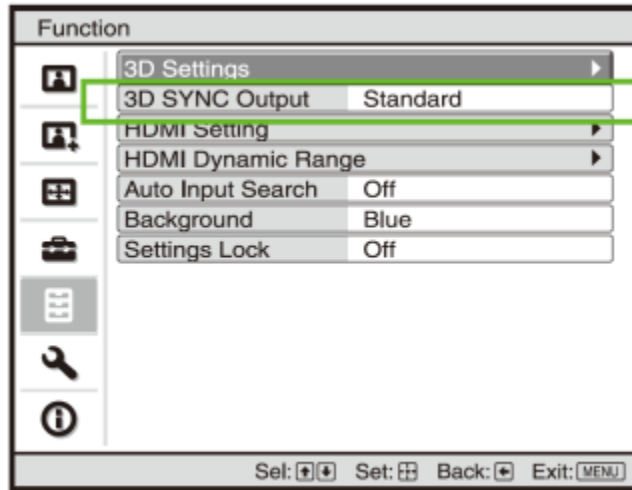
*VW95ES is up to 10m.

The viable angles and distance vary depending on the screen type, environment of the room, and installation environment of the projector.

[Design conditions]

	VW1000ES/VW1100ES	VW95ES
Supposed screen	130" / White-matt / Gain:0.85	120" / White-matt / Gain:0.85
Projection distance	8m (Tele zoom/TR:2.73)	5m
Viewing distance	5m (To cover 3PH "1.6m height x 3")	5m
Lens shift setting	0.8V / 0H	0V / 0H
IR LED	x15 (Output level +25%)	x12

How to use XpanD RF Transmitter



→ Change to "Option"

because 3D Sync timings are different
between Sony 3D and XpanD RF transmitter

3D Sync Output	Transmitter
Standard	TDG-PJ2 (Sony IR)
Option	AD025-RF-X1 (XpanD RF)



Conversion cable
(supplied separately from Jigyo-bu or Kosai based on your request)



XpanD **AD025-RF-X1**

Specification of XpanD RF Transmitter

XPAND Radio Frequency (RF) Emitter

AD025-RF-X1

Technical Specifications

Type of Synchronization: Radio Frequency (RF)

3D Synchronization Protocol In: Standard Mini DIN 3 (VESA)
connector

3D Synchronization Protocol Out: FHD3D RF protocol

Shuttering Frequency: 48 Hz, 50 Hz, 60, 72, 96 and 120 Hz

Connector Type: VESA

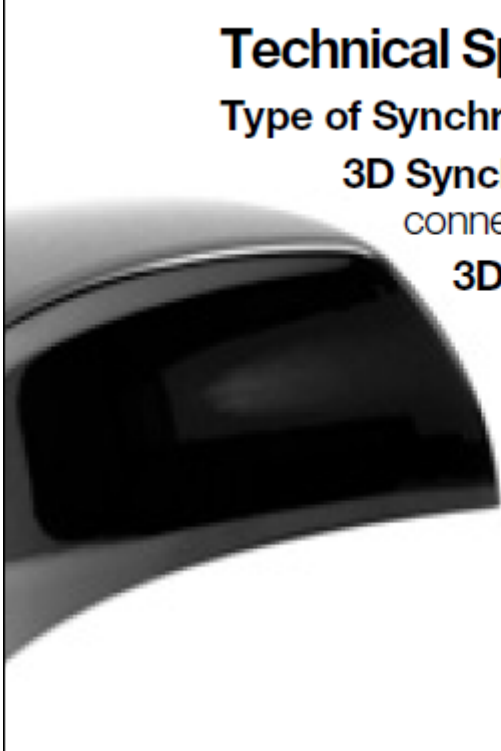
Setup: Plug&Play

Coverage Range: 25 m radius typical, 10 m minimum
(distance around the emitter)

Power: VESA powered, no external power supply needed

Operating Temperature: 5 °C (41 °F) – 40 °C (104 °F)

Weight: 76,5 g



Recommended 3D Glasses when using RF Transmitter

Same glasses as [VPL-VW500ES](#) and [VPL-VW600ES](#)

Model Name

TDG-BT500A

General

Operating Time : 100 hours

Power

Battery Type : CR2025 Lithium Manganese Dioxide Battery

Weights and Measurements

Dimensions (Approx.) : 5.7 x 1.8 x 6.6 in (147 x 46 x 170mm)

Weight (Approx.) : 1.3 oz (36 g)

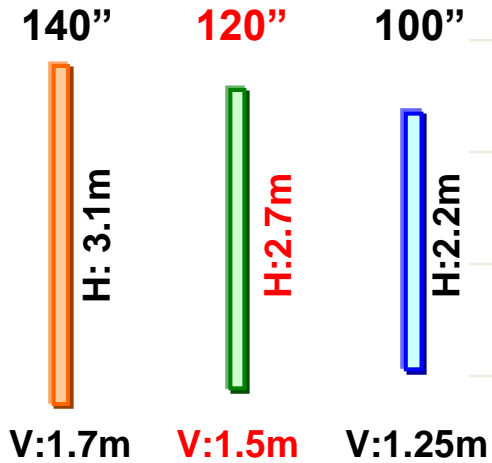


Well considered Throw Ratio

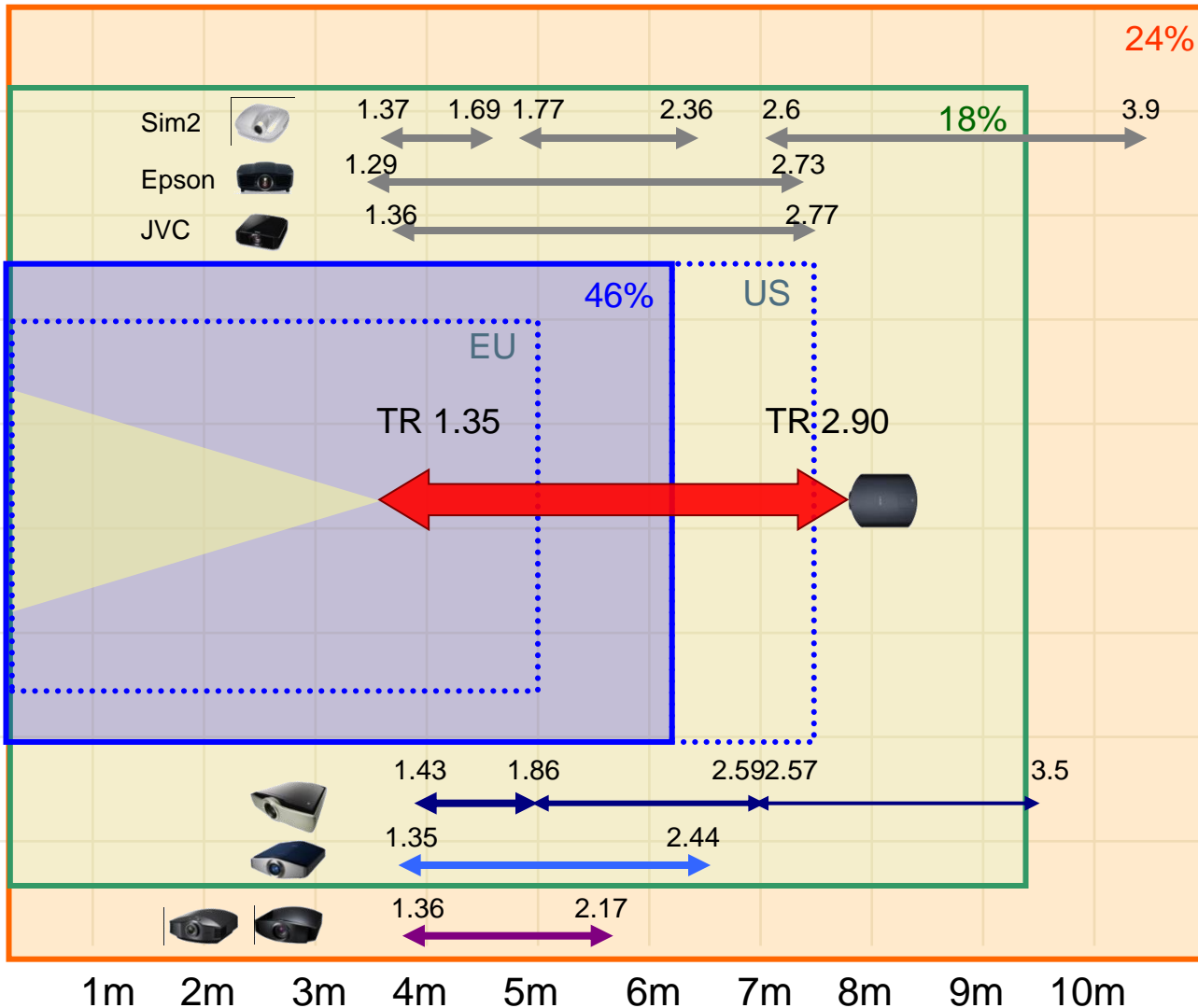
-Throw Ratio: 1.27 – 2.73 with 1.89:1 native aspect

x2.1 Zoom 1.35 - 2.90 with 1.78:1 aspect mode is replaceable with most products

Distance is calculated based on 1.78:1 /120"



Throw distance = Throw ratio x Screen width



*These numbers are approximation

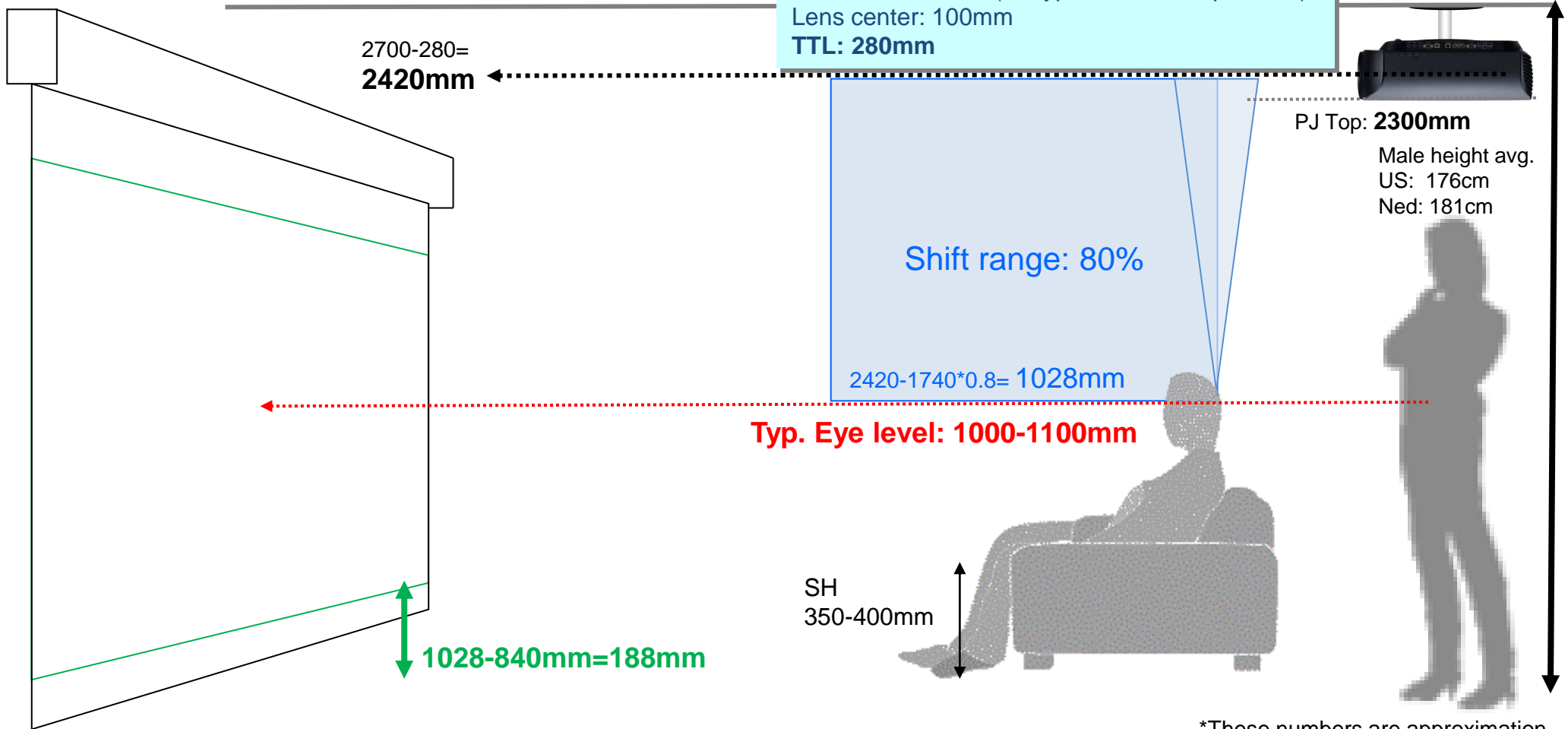
Flexible Lens Shift

Vertical: +-80% / Horizontal: +-31%

This is maximum range to keep 4K resolution from technical perspective

Recommend Life-size 140" (V:1740mm/1.78:1)

Calculation Conditions
Ceiling height: 2700mm
PSS-H10: 175mm (3rd typ.50-200mm/up to 400)
Lens center: 100mm
TTL: 280mm

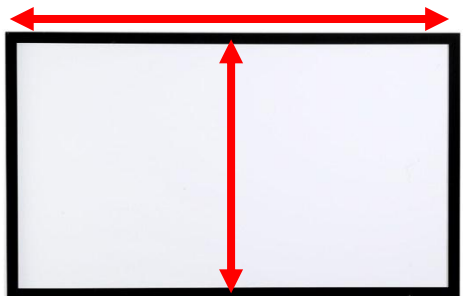


*These numbers are approximation

Recommendation 1

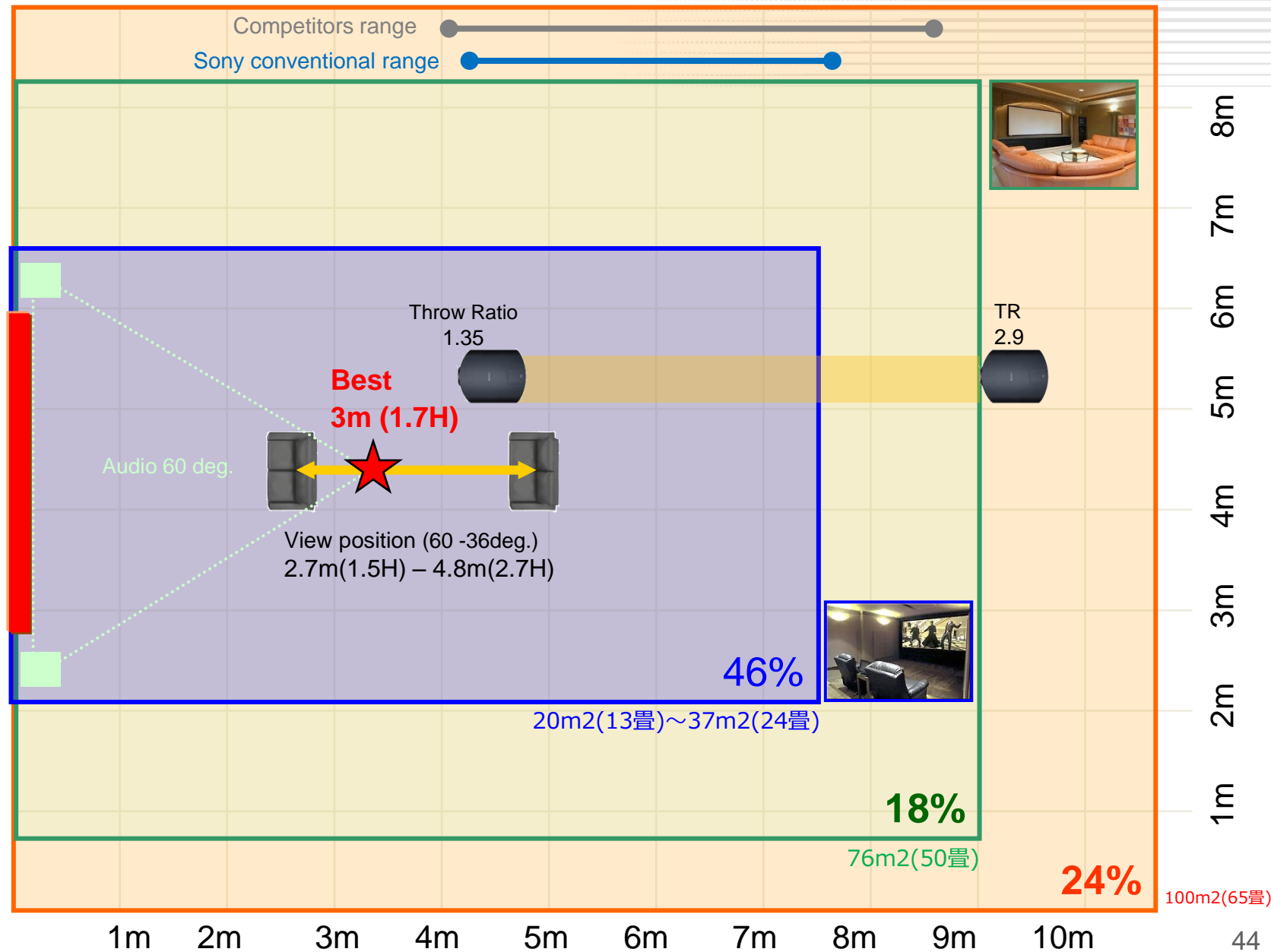
1.78:1 / 140"

W: 3.1m



H: 1.7m

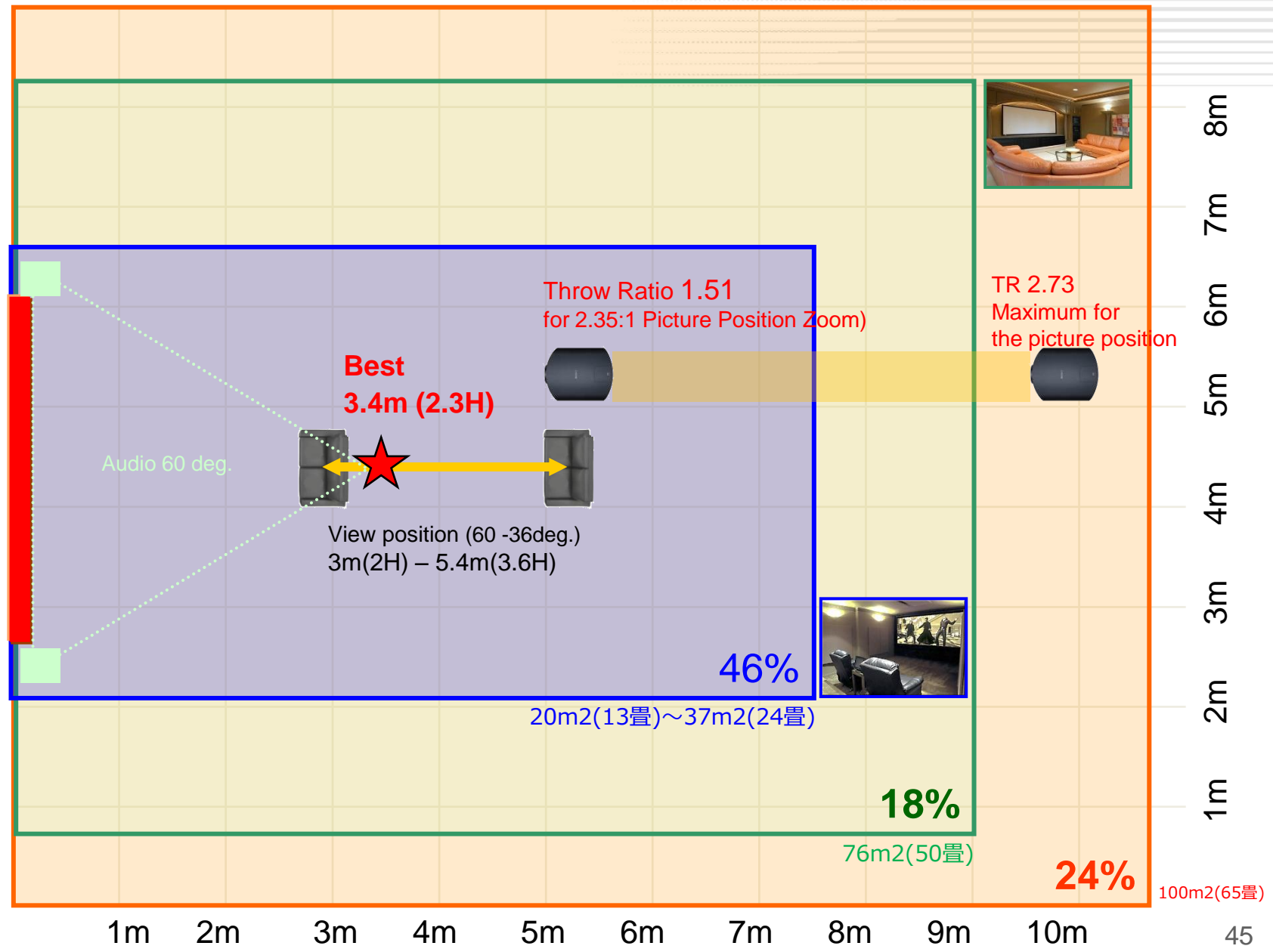
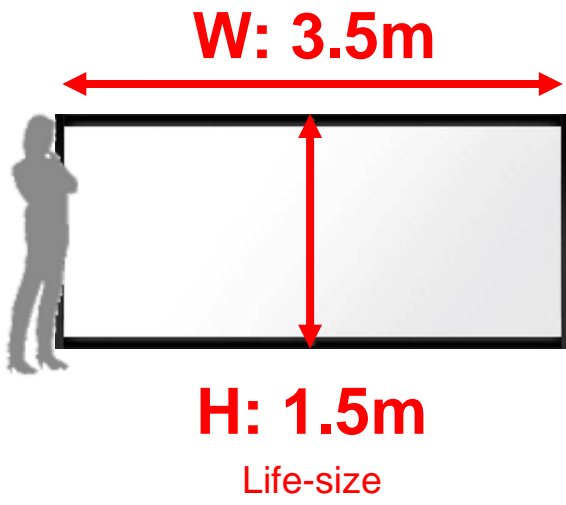
Life-size



*These numbers are approximation

Recommendation 2

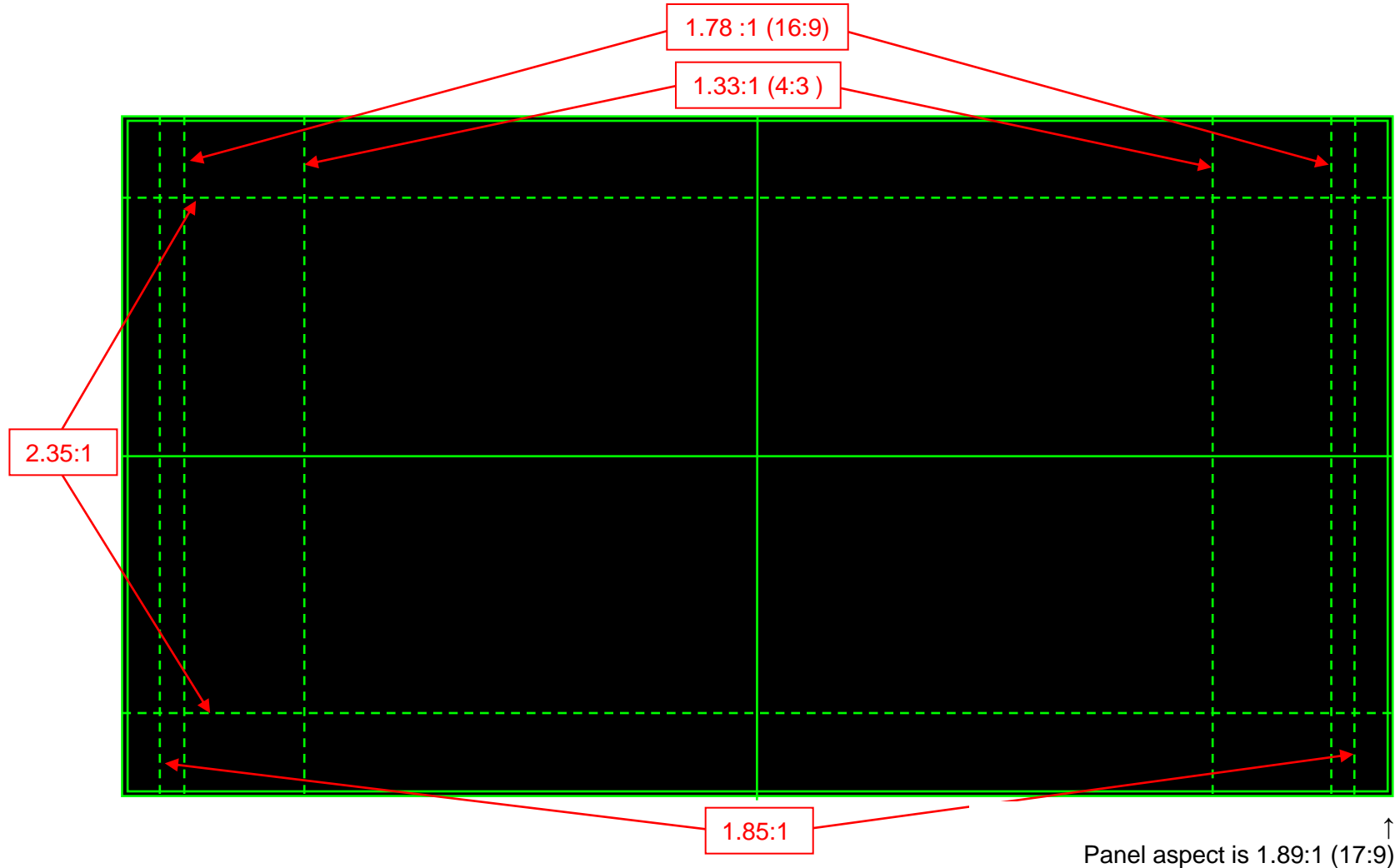
2.35:1 / 150"
 1.78:1 / 120"



*These numbers are approximation

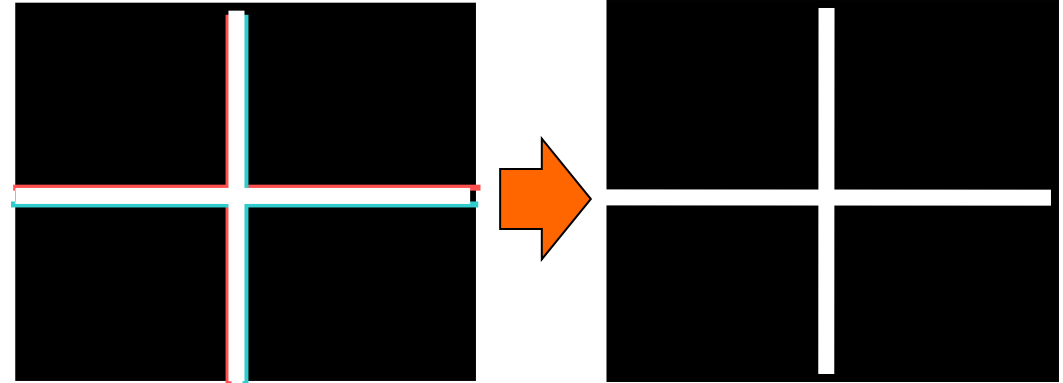
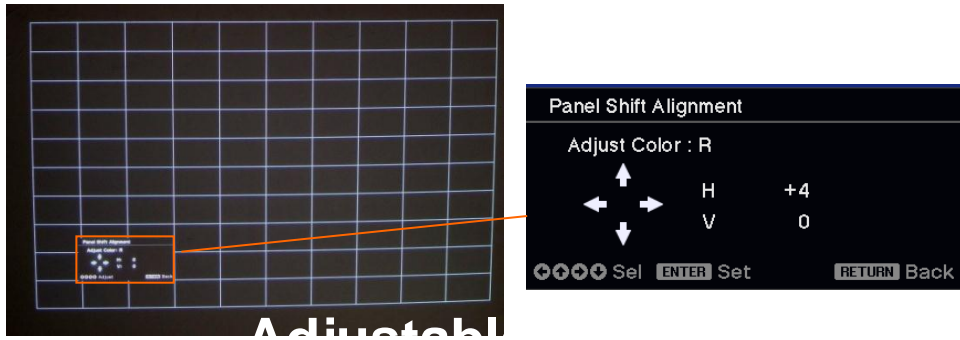
New Test Pattern for easy projection

The new pattern image shows various aspect ratio.
Also useful for picture position setting.



Panel Alignment Function

This feature allows you to adjust the gaps in the color of characters or the picture

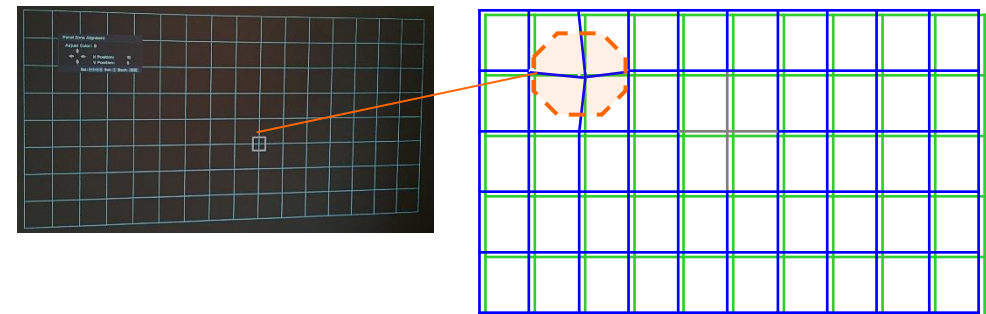
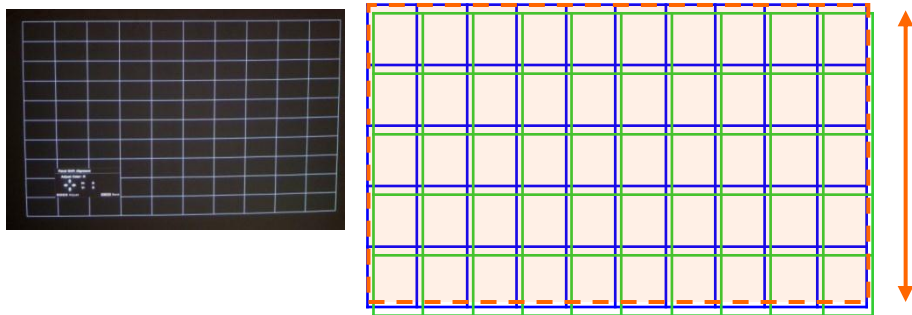


Shift

- ✓ Shifts the whole picture
- ✓ Adjustment range : $\pm 3.0\text{dot}^*$ by 0.1

Zone

- ✓ Selects the desired range (H:17 x V:9 = 153 cross points)
- ✓ Adjustment range : $\pm 5.0\text{dot}$ by 0.1

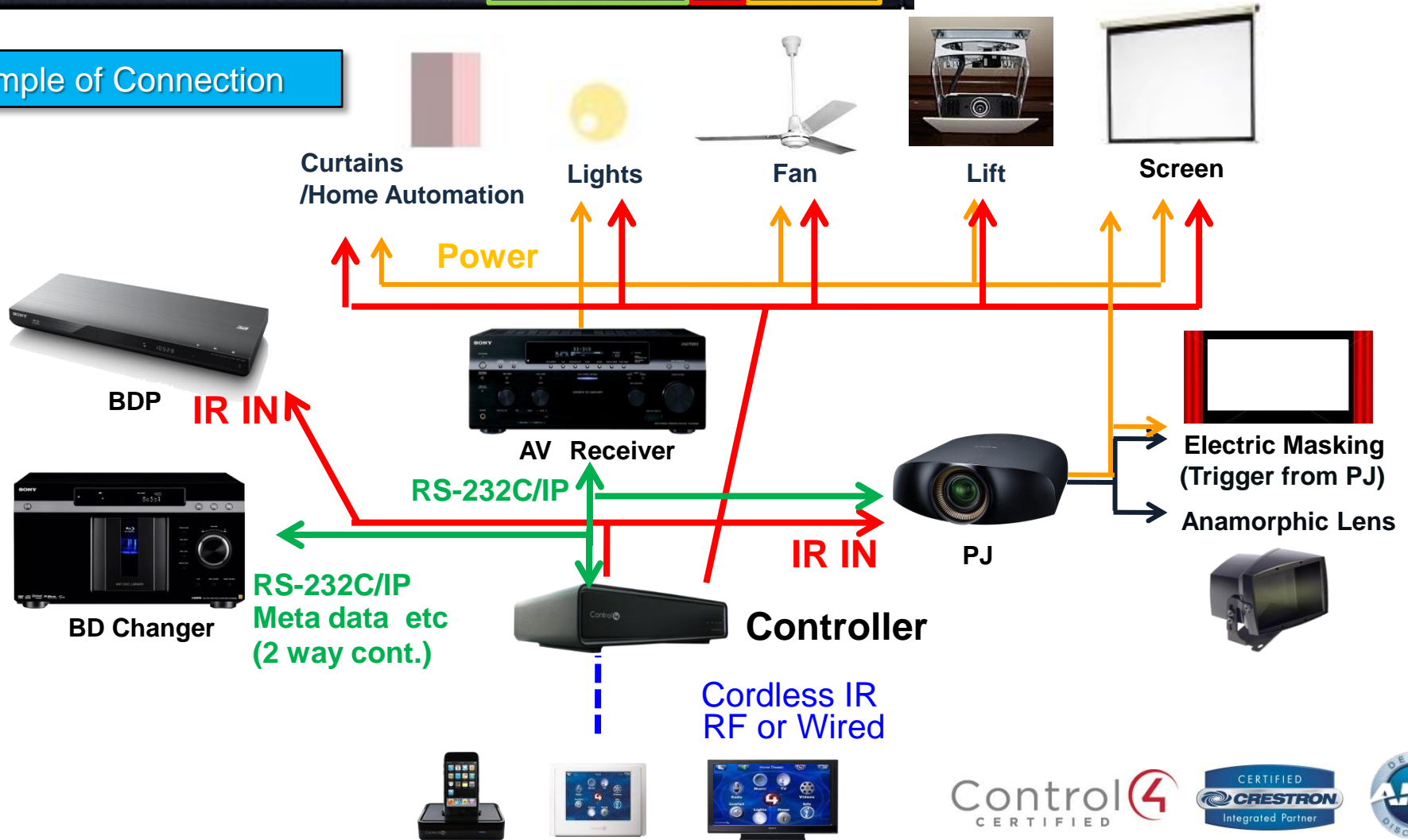


Shift + Zone : Max. 5.0 dot

Home Automation Interface Control



Example of Connection



User-friendly

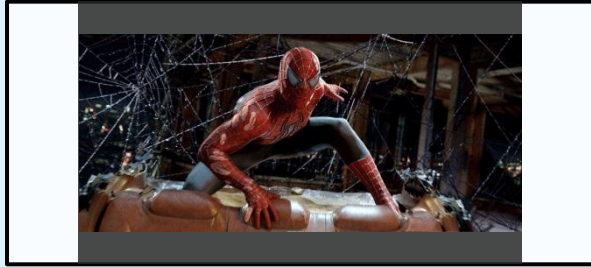
Anamorphic compatibility

To enjoy watching full size picture without or minimize black letters with 2.35:1 screen, VW1000ES/VW1100ES has two ways as below.

1. Anamorphic Lens

Step1:

1.78:1 area shown on 2.35:1 screen



Step2:

Scaling "V Stretch" by Projector



This aspect mode is available for both 2D and 3D

Step3:

Horizontally stretch by Anamorphic lens



Synchronized with "V Stretch" command by trigger

2. Picture Position Memory

For lens-less anamorphic viewing at the press of button. 5 positions available

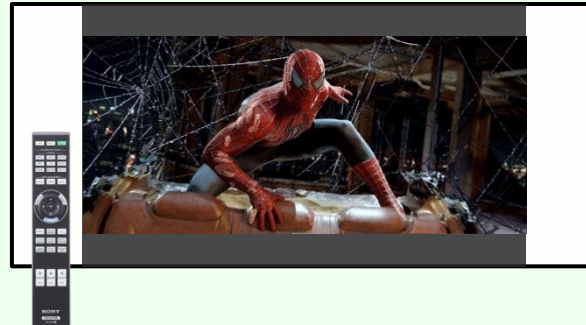
Step1:

Memorize lens position (Focus, Zoom, Shift)



Step2:

Press "Position" button



Step3: Zoom to preset position



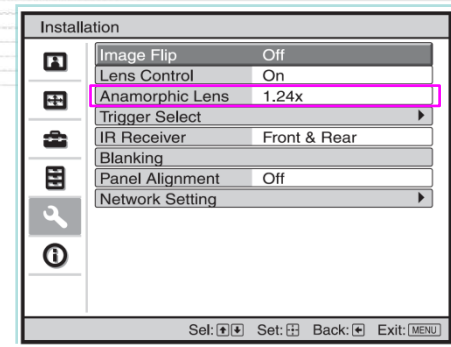
Aspect Modes

Often use | Not use

		Selectable Aspects are depend on resolution				SD
Source		1.33:1	1.78:1	1.85:1	2.35:1	Squeeze
Aspect Mode						
1.85:1 Zoom For Full-size zoom						
2.35:1 Zoom For Full-size zoom						
Normal For 1.85:1 screen						
Stretch For Squeezed signal						
V Stretch For expansion lens						
Squeeze For squeeze lens						

Anamorphic type

VW1100ES has two type of scaling ratio “x1.24” and “x1.32” for two aspect modes “V Stretch” and “Squeeze”.



x1.24 expansion ratio

This ratio is from “1.89:1 (Native aspect)” to “2.35:1”
This type of lens is a few availability so far.



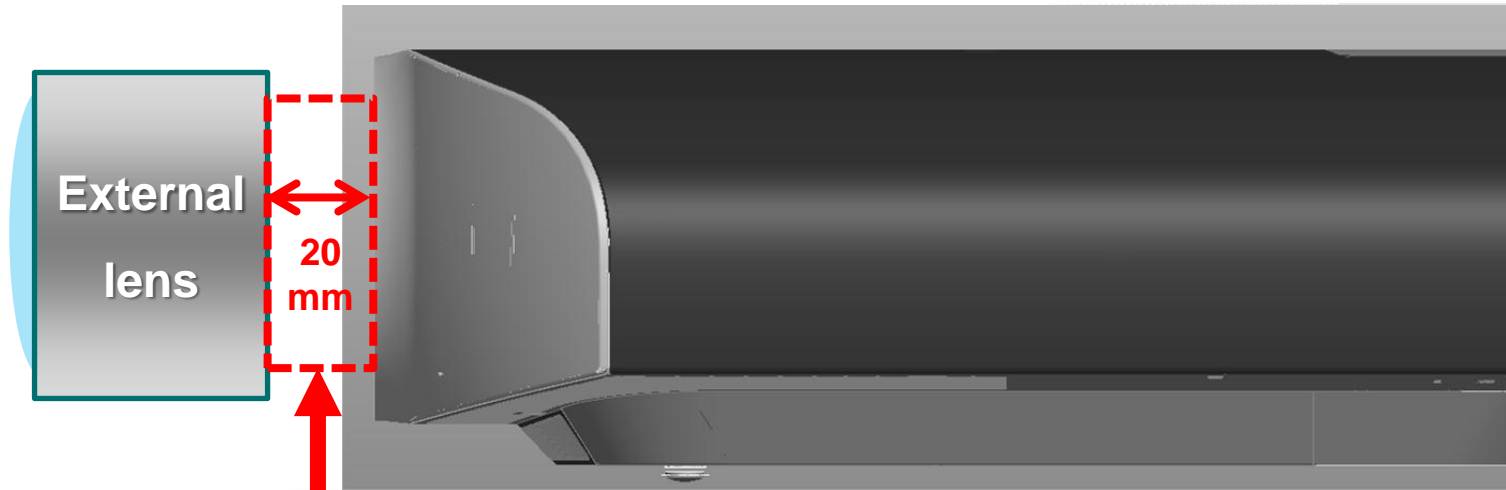
x1.32 expansion ratio

This ratio is from “1.78:1” to “2.35:1” Most available lenses are this type.



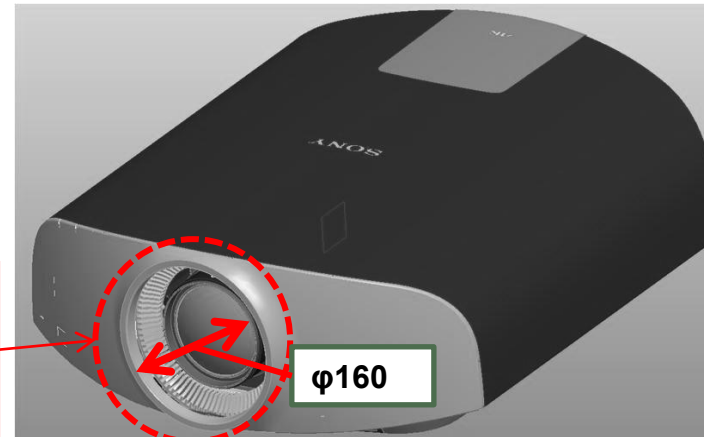
*The small gap with lens expansion ratio seems to be design margin.

Clearance for external lens attachment



**Never prevent air flow
please keep more than 20mm from front face.**

Total ventilation should be kept
 $10000\text{mm}^2 : 160\pi * \underline{20} = 10053\text{mm}^2$



Logic of 5 Picture Positions



	Standard	HDTV	VISTA (Europe)	VISTA (American)	SCOPE	For Subtitle
Aspect	1.33:1 / 1.37:1	1.78:1	1.66:1	1.85:1	2.35:1	
Screen	1.78 :1	V fit "Normal" ①	V fit "Normal" ①	V fit "Normal" ①	H fit "1.85:1" or "Normal" with position ②	H fit "2.35:1" or "Normal" with position ③ Caption +1
	1.89 :1	"Normal"	"Normal"	"Normal"	"1.85:1"	"2.35:1" Caption +1
	2.35 :1		V fit "Normal" or "Squeeze" ①	V fit "Normal" or "Squeeze" ①	V fit "1.85:1" or "Squeeze" ①	Zoom x1.33 "2.35:1" or "V Stretch" ② Caption +2

Anamorphic Lens vs Picture Position

Solution	Anamorphic Lens	Picture Position
Additional Cost	High	No need
Brightness	Theoretically Better Depend on lens performance	Depend on aspects For 2.35:1, slightly less by black letters
Resolution	Maximize pixels	Depend on aspects For 2.35:1, slightly less by black letters
Lens distortion	Disadvantage	Better
Installation	Difficult	Easy
Throw distance	Flexible	Limited Depend on distance and zoom ratio

User-friendly

Powerful Picture Calibration Features

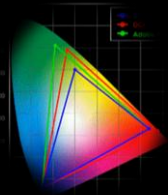
This features provide not only appropriate pictures but also multiple environment.

Not only "Complete dark room" but also "Lighting room"

Bright mode
for Lighting room



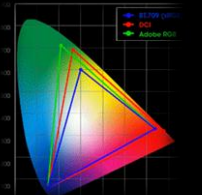
Max. lumen
with
"sRGB"



Cinema mode
for Dark room



Dimming
with
DCI"



Sports



Game



Cinema











Photo / Art

User-friendly

Powerful Picture Calibration Features

9 calibrated presets prepared for various contents

<p>Cinema Film1 (Conventional: Cinema1) Highly dynamic and clear images typical of master positive film</p> 	<p>Cinema Film2 (New) Rich tone and color typical of movie theater</p> 	<p>Cinema Digital (Conventional: Cinema2) Digital Cinema like images resembling DCI specifications</p> 
<p>Reference (Conventional: Cinema3) Original image without any adjustment</p> 	<p>TV (Conventional: Standard) Watching TV programs, sports, concerts, etc.</p> 	<p>Photo For still images taken with a digital camera</p> 
<p>Game Well-modulated colors and fast response</p> 	<p>Bright Cinema (New) Movies in a bright environment, such as living room</p> 	<p>Bright TV (Conventional: Dynamic) TV programs in a bright environment</p> 

Initial setting for each presets

2D	Cinema Film1	Cinema Film2	Cinema Digital	Reference	TV	Photo	Game	Bright Cinema	Bright TV
Reality Creation Resolution	20	20	15	1	50	10	15	20	50
Reality Creation Noise Filtering	20	20	30	30	60	10	30	20	50
Advanced Iris	Auto Full	Auto Limited	Off	Off	Auto Full	Off	Off	Auto Full	Auto Full
Film Projection	Off	On	On	Off	Off	Off	Off	Off	Off
Motion Enhancer	Off	Off	Off	Off	Low	Off	Off	Off	Low
Contrast	100	100	90	90	100	100	100	100	100
Color	50	50	50	50	50	50	55	50	60
Color Temp.	D65	DCI	DCI	D65	D65	D55	D65	D65	D93
Sharpness	10	10	10	10	10	10	10	10	20
MPEG NR	Off	Off	Off	Off	Middle	Off	Off	Off	Middle
Smooth Gradation	Low	Low	Low	Off	Middle	Low	Low	Low	Middle
Film Mode	Auto1	Auto1	Auto1	Auto1	Auto1	Off	Off	Auto1	Auto2
Black Level Adj.	Low	Low	Off	Off	Middle	Off	Off	Low	Middle
Gamma Correction	Off (2.2)	Off (2.2)	2.4	Off (2.2)	2.4	Off (2.2)	2.1	Off (2.2)	2.4
Clear White	Off	Off	Off	Off	Low	Off	Off	Off	Low
Color Space	DCI	DCI	DCI	BT.709	Color Space 1	BT.709	BT.709	Color Space 3	Color Space 3

3D	Cinema Film1	Cinema Film2	Cinema Digital	Reference	TV	Photo	Game	Bright Cinema	Bright TV
Reality Creation Resolution	40	40	30	1	60	20	30	50	60
Reality Creation Noise Filtering	20	20	30	30	60	20	20	20	50
Advanced Iris	-	-	-	-	-	-	-	-	-
Film Projection	-	-	-	-	-	-	-	-	-
Motion Enhancer	Low	Low	Low	Low	Low	Low	Off	Low	Low
Contrast	100	100	100	100	100	100	100	100	100
Color	65	65	65	65	65	65	70	70	70
Color Temp.	D65	DCI	DCI	D65	D65	D55	D65	D65	D93
Sharpness	10	10	10	10	10	10	10	10	20
MPEG NR	Off	Off	Off	Off	Middle	Off	Off	Off	Middle
Smooth Gradation	-	-	-	-	-	-	-	-	-
Film Mode	-	-	-	-	-	-	-	-	-
Black Level Adj.	Low	Low	Off	Off	Middle	Off	Off	Low	Middle
Gamma Correction	Off (2.2)	Off (2.2)	2.4	Off (2.2)	2.4	Off (2.2)	2.1	Off (2.2)	2.4
Clear White	Off	Off	Off	Off	Low	Off	Off	Off	Low
Color Space	Color Space 3	Color Space 3	Color Space 3	BT.709	Color Space 3	BT.709	BT.709	Color Space 3	Color Space 3

Comparison of Gamma Correction

VW95ES	VW1100ES	
Gamma 1 (Equivalent to 1.8)	1.8	Produces a brighter picture overall.
Gamma 2 (Equivalent to 2.0)	2.0	
Gamma 3 (Equivalent to 2.1)	2.1	
	2.2	
Gamma 4 (Equivalent to 2.35)	2.4	
	2.6	Produces a darker picture overall.
Gamma 5	Gamma 7	Brightens dark areas in the picture, and expands gradation expression.
Gamma 6	Gamma 8	Produces a picture with contrast emphasized slightly.
Gamma 7	Gamma 9	Produces a picture with contrast emphasized more than with Gamma the above.
Gamma 8	Gamma 10	Simulates the gamma curve of film.
Gamma 9		Expands gradation expression on the black side more than with the above
Gamma 10 (Equivalent to 2.2)		Simulates the gamma curve of still images
Off	Off	Gamma Correction is not applied. "2.2"

Functions

- **Motionflow** with Dark Frame Insertion
- **24P True Cinema**
- **x.v.Color**
- **Deep Color**
- **Web Control and Monitoring / E-mail Report**
- **Image Director 3.0**

Motionflow with Dark Frame Insertion



1. “Motion Enhancer” display by x2 speed (120Hz for 60p) / x4 speed (96Hz for 24p) to be smoother and less motion blur.

This Sony-unique algorithm creates completely new images based on the incoming signal, and inserts them between the original frame.

2. “Film Projection” the Dark Frame Insertion reduces motion blur and judder for further improving the clarity of moving images

Conventional algorithm has visible flicker, VW1000ES/VW1100ES improved this issue.

Without Motionflow with DFI



With Motionflow with DFI



Simulated Images

24P True Cinema



Reproduce Film-like motion

Movies shot with a film camera have 24 frames per second. With the 24p True Cinema, all 24 progressive images are displayed in the same sequence as the original film source.

Motionflow overview



Original source

1/60(50) sec



2/60(50) sec



3/60(50) sec



1. Motion Enhancer for 60p/50p **Not available for 4K input*

1/120(100) sec



2/120(100) sec



3/120(100) sec



4/120(100) sec



5/120(100) sec



6/120(100) sec



2. Film Projection (DFI) **Brightness: 30% less*

1/120(100) sec



2/120(100) sec



3/120(100) sec



4/120(100) sec



5/120(100) sec

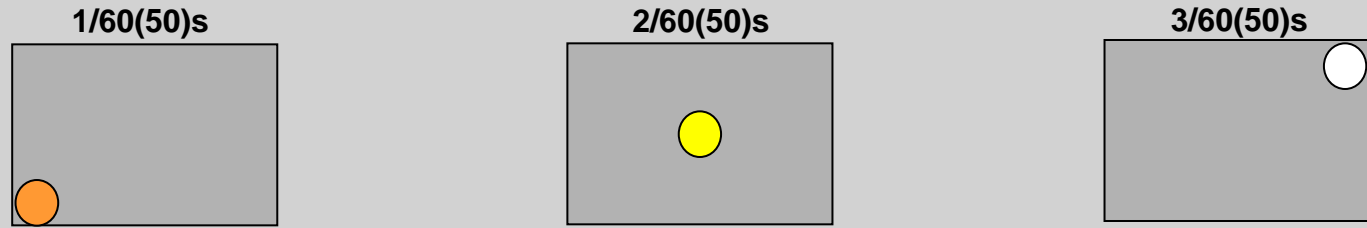


6/120(100) sec

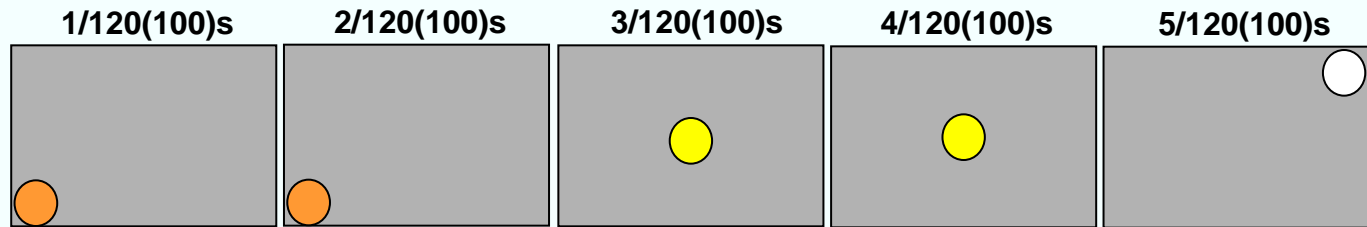
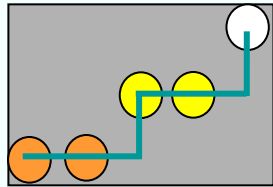


Motion Enhancer x2 speed for 60p/50p

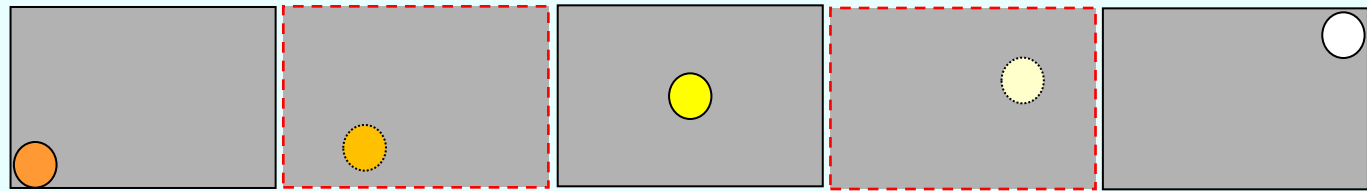
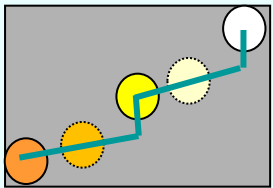
Original source



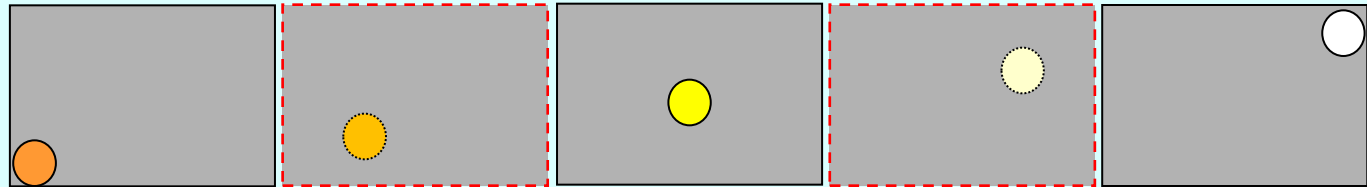
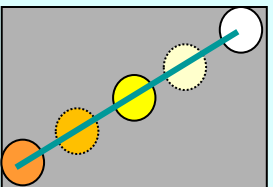
Motion Enhancer "Off"



Motion Enhancer "Low"



Motion Enhancer "High"

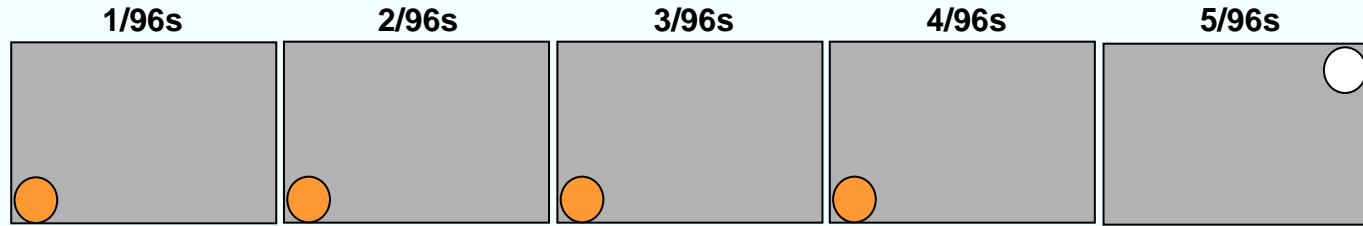
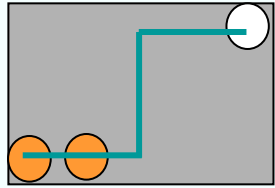


Motion Enhancer x4 speed for 24p

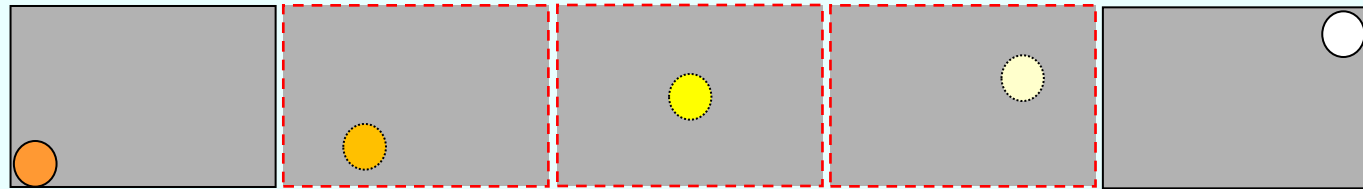
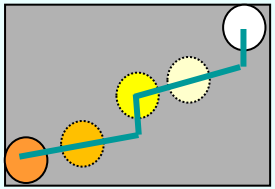
Original source



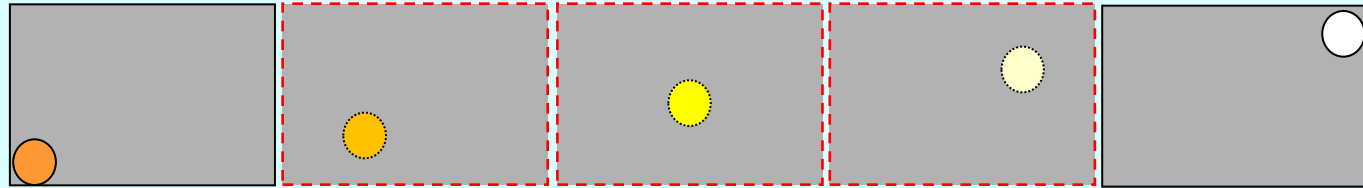
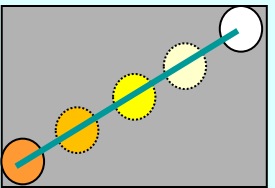
Motion Enhancer "Off"



Motion Enhancer "Low"



Motion Enhancer "High"



x.v.Color

- It's for connection with compatible products and wide range of rich colors
 - xvYCC is an international video standard that covers a color space that is approximately twice the space of sRGB
 - A wider range of colors can be reproduced by capturing, recording, editing, transmitting and displaying with xvYCC-compatible products
 - x.v.Color products can capture, receive and display colors defined in the xvYCC color space



Deep Color

- Deep color for finer color shades
 - Smoother reproduction of color shades through HDMI
 - Compatible with HDMI Deep Color signals from devices

The richness of color gradation is determined by bits of information the source contains.

Support 12bit deep color is capable of receiving the Deep Color signals from devices such as PS3, allowing for a smoother, finer reproduction of shades and tones.

Web Control and Monitoring / E-mail Report

- Enables to operate the projector, and also to monitor its status such as lamp usage time...etc through the network.
- Receiving a lamp exchange timing report by E-mail

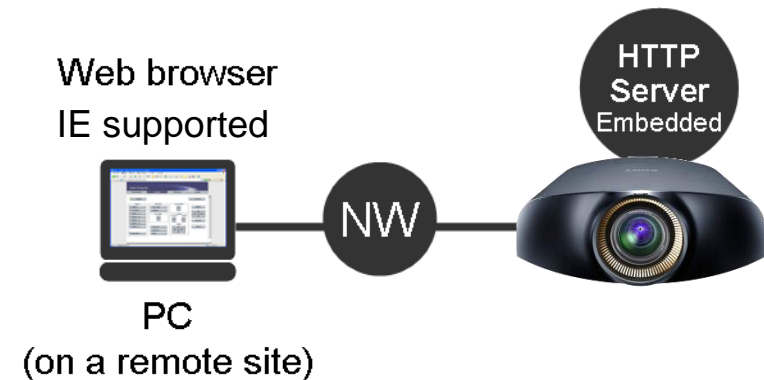
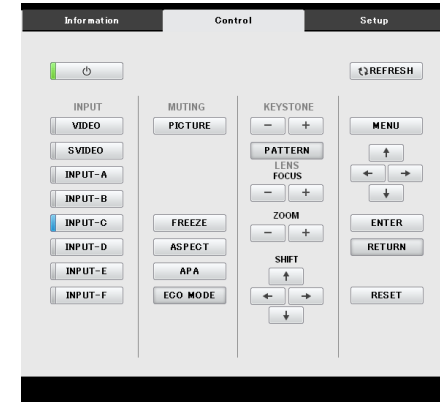
How to use



- **Launch the browser Internet Explorer**
- **Set the projector IP address**
 - Enter the projector IP address to the address bar like below
Example) `http://169.254.41.188/` Enter IP address of the projector

Other network features

- PJ Talk 2
- AMX Dynamic Device Discovery Protocol



ImageDirector 3.1

Gamma Adjustment Application Software (Download from URL in below)

Function up: From ImageDirector 3.1, all mode (Gamma1-10) is adjustable

<http://esupport.sony.com/US/p/select-system.pl>

<http://www.pro.sony.eu/pro/article/projectors-home-cinema-article>

<http://www.sony.jp/support/projector/index.html>

**Download from the web
No CD bundled**

“Image Director3.1” for fine gamma adjustment is worked by PC via the RS232C .

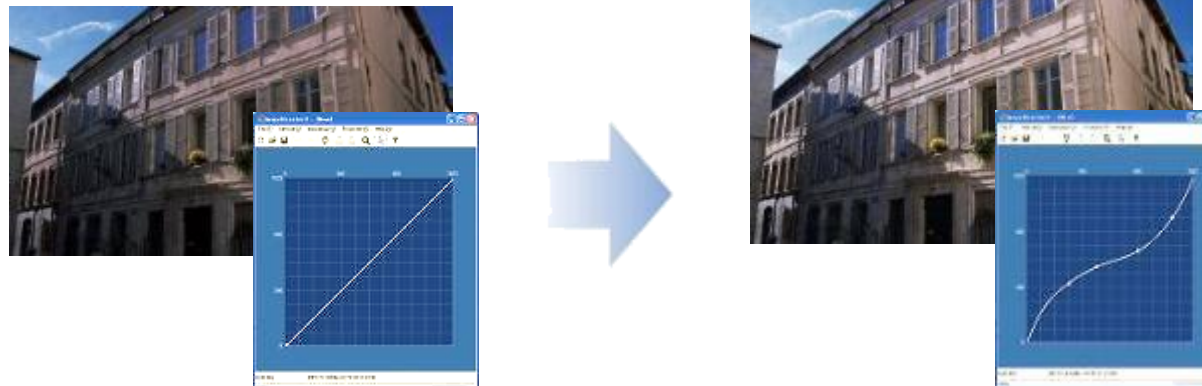
* Supported OS: Microsoft Windows XP Home Edition / Professional Service Pack 3 or later

Windows Vista Home Basic / Home Premium / Business / Enterprise / Ultimate Service Pack 2 or later

Windows 7 Home Basic / Home Premium / Professional / Enterprise / Ultimate Service Pack 1 or later

Windows 8 / Professional / Enterprise

*The 32-bit and 64-bit editions of Windows Vista, Windows 7, and Windows 8 series are supported



Name matching for Gamma correction

Projector	Image Director
1.8	Gamma 1
2.0	Gamma 2
2.1	Gamma 3
2.2	Gamma 4
2.4	Gamma 5
2.6	Gamma 6
Gamma 7	Gamma 7
Gamma 8	Gamma 8
Gamma 9	Gamma 9
Gamma 10	Gamma 10

Other Product Information

- **On Screen Menu**



- **Specification table**

Other Product Information

On Screen Menu

		VPL-VW1100ES			Comment	
Picture 1/3	Calibrated Preset	Cinema Film1				
		Cinema Film2				
		Cinema Digital				
		Reference				
		TV				
		Photo				
		Game				
		Bright Cinema				
		Bright TV				
	Reality Creation	On	Database		Mastered in 4K	For "Mastered in 4K" Blu-ray Only available when the signal is 1080/24p
			Resolution		Normal	
			Noise Filtering			
			Test ON/OFF			
		Off				
	Cinema Black Pro	Advanced Iris (NA for 3D)	Auto Full			
			Auto Limited			
			Manual			
		Lamp Control	High			
			Low			
	Motionflow	Film Projection	On			
			Off			
		Motion Enhancer (NA for 4K)	High			
			Low			
			Off			
	Contrast					
	Brightness					



Menu: Some items are changed from conventional

		VPL-VW1100ES		Comment
Picture 2/3	Color			
	Hue			
	Color Temp.	D93		9300k
		D75		7500k
		D65		6500k
		DCI		
		D55		5500k
		Custom 1-5		
	Sharpness			
	Expert Setting	NR (NA for 4K)	High	
			Middle	
			Low	
			Off	
		MPEG NR (NA for 4K)	High	
			Middle	
			Low	
			Off	
		Smooth Gradation (NA for 3D)	High	
			Middle	
			Low	
Off				
Film Mode (NA for 3D/4K)		Auto 1		
		Auto 2		
		Off		
Black Level Adj. (NA for 4K)		High	Dynamic	
	Middle	Dynamic		
	Low	Dynamic		
	Off			

Menu: Some items are changed from conventional

	VPL-VW1100ES		Comment
Picture 3/3	Gamma Correction (NA for x.v.Color)	1.8	
		2.0	
		2.1	
		2.2	
		2.4	
		2.6	DCI
		Gamma 7	
		Gamma 8	
		Gamma 9	
		Gamma 10	
		Off	
	Color Correction	On	HSV correction. "On" is recommended
		Off	Use when neutral gradation is degraded
	Clear White	High	
		Low	
		Off	
	x.v.Color	On	
		Off	
	Color Space	BT.709	
		DCI	
Adobe RGB			
Color Space 1			
Color Space 2			
Color Space 3			

Menu: Some items are changed from conventional

	VPL-VW1100ES			Comment
Advanced Picture				
Screen	Picture Position	1.85:1	Save/Delete/Select	
		2.35:1	Save/Delete/Select	
		Custom 1	Save/Delete/Select	
		Custom 2	Save/Delete/Select	
		Custom 3	Save/Delete/Select	
	Aspect	1.85:1 Zoom		
		2.35:1 Zoom		
		Normal		
		Stretch		
		V Stretch		
		Squeeze		
	Over Scan (NA for 3D/4K)	On		
		Off		
	Adjust Signal	Phase		
		Pitch		
Shift		H/V		

Menu: Some items are changed from conventional

	VPL-VW1100ES		Comment
Setup 1/2	Status	On	
		Off	
	Language	English	
		Dutch	
		French	
		Italian	
		German	
		Spanish	
		Portuguese	
		Russian	
		Swedish	
		Norwegian	
		Japanese	
		Chinese (Simplified Chinese)	
		Chinese (Traditional Chinese)	
		Korean	
	Thai		
	Arabic		
	Menu Position	Bottom Left:	
		Center	
Cooling Setting	High		
	Standard		

Menu: Some items are changed from conventional

	VPL-VW1100ES			Comment
Setup 2/2	Standby Mode	Standard		
		Low		
	Power Saving	On		
		Off		
	Lamp Setting			

Menu: Some items are changed from conventional

	VPL-VW1100ES		Comment	
Function	3D Settings (NA for 4K)	Auto		
		3D	Simulated 3D	No time limited
			Side-by-Side	
			Over-Under	
		2D		
		3D Brightness	High	
			Standard	
		3D Depth Adjust	-2/-1/0/1/2	
		Simulated 3D Effect	High	
	Middle			
	Low			
	3D Sync Output	Standard		For IR (TMR-PJ2)
		Option		For XpanD External Transmitter
	HDMI Setting	On		
		Off		Default setting
		Device Auto Power Off	On	
			Off	
		PJ Auto Power On	On	
	Off			
	Device List			
	HDMI Dynamic Range	Auto		NEW
		Limited		
		Full		
	Auto Input Search	On		
		Off		
	Test Pattern	On		
		Off		
Background	Black		Default setting	
	Blue			



Menu: Some items are changed from conventional

	VPL-VW1100ES		Comment	
Installation	Image Flip	HV/H/V		
	Lens Control	On		
		Off		
	Anamorphic Lens	1.24x		
		1.32x		
	Trigger Select	TRIGGER1/2	Off	
			Power	
			V Stretch	
			2.35:1 Zoom	
	IR Receiver	Front & Rear		
		Front		
		Rear		
	Blanking	Left/Right Top/Bottom		
	Panel Alignment	Shift		
		Zone		
Network Setting	IP Address Setup	Auto (DHCP)		
		Manual		
	IP Address			
	Subnet Mask			
	Default Gateway			
	Primary DNS			
	Secondary DNS			
MAC Address				

Menu: Some items are changed from conventional

	VPL-VW1100ES			Comment
Information	Model name			
	Serial No.			
	fH			
	fV			
	Memory No.			
	Signal type			
	Lamp Timer			

Specification table (1/6)

		VPL-VW1100ES
Display system		SXRD panel, projection system
Display elements	Effective display size	0.74" (18.8mm) x 3
	Effective pixels	26,542,080 (4096 x 2160 x 3) pixels
Projection lens	Throw ratio	1.27:1 to 2.73:1
	Zoom	Powered (Approx. 2.1 x)
	Focus	Powered
	Lens shift	Powered, V:±80% / H:±31%
Light source		Ultra High-pressure lamp 330W type
Recommended lamp replacement time^{*1}		Approx. 2000 H (Lamp mode : High) / Approx. 2500 H (Lamp mode : Low)
Filter replacement cycle		No Filter
Screen size		60" to 300" (15.24 m to 76.24 m)
Light Output		2000 lm (Lamp mode: High)
Color Light Output		2000 lm (Lamp mode: High)
Contrast ratio		1,000,000:1 (Dynamic Contrast)

*1: The figures are approximate. They vary depending on the environment or how the projector is used. Jigyobu cannot guarantee them.

*2: This value is average, Jigyobu cannot guarantee it.

Specification table (2/6)

		VPL-VW1100ES
Speaker		No
Displayable scanning frequency	Horizontal	19 kHz to 72 kHz
	Vertical	48 Hz to 92 Hz
Display resolution	Computer signal input	Maximum display resolution: 1920 x 1080 dots (HDMI Input only) Panel display resolution: 4096 x 2160 dots
	Video signal input	480/60i, 576/50i, 480/60p, 576/50p, 720/60p, 720/50p, 1080/60i, 1080/50i The following items are available for HDMI input only. 1080/60p, 1080/50p, 1080/24p, 3840 x 2160/24p, 3840 x 2160/25p, 3840 x 2160/30p, 4096 x 2160/24p
V. Keystone correction		No
OSD language		20-languages (English, Dutch, French, Italian, German, Spanish, Portuguese, Turkish, Polish, Russian, Swedish, Norwegian, Japanese, Simplified Chinese, Traditional Chinese, Korean, Thai, Vietnamese, Arabic, Persian)

Specification table (3/6)

		VPL-VW1100ES
Input/Output	HDMI (2 inputs)	Digital RGB/Y Pb/Cb Pr/Cr
	Y Pb/Cb Pr/Cr	Component: phono type
	INPUT A	Mini D-sub 15-pin (RGB)
	Trigger (2 connectors)	Mini jack, DC 12V Max. 100mA
	Remote	RS-232C, D-sub 9-pin (female)
	LAN	RJ-45, 10BASE-T/100BASE-TX
	IR IN	Mini Jack
	3D Sync	RJ-45

Specification table (4/6)

		VPL-VW1100ES
Acoustic noise*		23dB (Lamp mode: Low)
Operating temperature (Operating humidity)		5 °C to 35 °C / 41 °F to 95 °F (35% to 85% (no condensation))
Storage temperature (Storage humidity)		-20 °C to +60 °C / -4 °F to +140 °F (10% to 90%)
Power requirement		AC 100V to 240V, 4.8A to 2.0A, 50Hz / 60Hz
Power consumption	AC 100V	480 W / 400 W (Lamp mode: High / Low)
	AC 120V	470 W / 390 W (Lamp mode: High / Low)
	AC 220V to 240V	460 W / 370 W (Lamp mode: High / Low)
Standby mode power consumption	AC 100V	3.5 W (Standby mode: Standard) / 0.3 W (Standby mode: Low)
	AC 120V	3.5 W (Standby mode: Standard) / 0.3 W (Standby mode: Low)
	AC 220V to 240V	3.9 W (Standby Mode: Standard) / 0.4 W (Standby mode: Low)
Safety Regulations	WW model	UL60950-1 2nd Edition, cUL (No.60950-1 2nd Edition), FCC/IC Class B, CE EN60950-1 2nd Edition (LVD,EMC), 豪EMC適合宣言, 電気用品安全法 省令 2 項, VCCIクラスB情報技術装置, 電源高調波 JIS C 61000-3-2, GOST-R
	China model	CCC
Body Color		Black
Standard outside dimensions		Approx. W 520 x H 208 x D 640 mm / W 20 1/2 x H 8 3/16 x D 25 1/4"
		Approx. W 520 x H 200 x D 640 mm / W 20 1/2 x H 7 7/8 x D 25 1/4" (without protrusion)
Weight		Approx. 20.0 kg / 44 lb 1.5 oz

*For China, "Less than 36dB"

Specification table (5/6)

		VPL-VW1000ES/VW1100ES
Accessories		Remote Control RM-PJ22: 1-490-070-11 (1)
		Size AA (R6) manganese batteries (2)
		AC Power Cord for projector (1) (@local: ex.U,J,CH)
		Plug Holder (1)
		AC inlet cover (1)
		3D glasses (2)
		Pouch for the 3D glasses (2)
		USB charging AC power adaptor (AC-UD10) (1)
		AC power cord for USB charging AC power adaptor (1) (@local: ex.U,J,CH)
		USB charging cable (GPHK05 -2010 - 0007/SONY) (1.2 m) (1)
		Warranty Card (1) (@local: ex.U,J,CH)
		Quick Reference Manual (1)
		Operating Instructions (CD) (1)
		Service stations list (1) (for China)
Battery for the remote commander of the projector	Category	Battery Manganese
	Type	Size AA (R6)
	Weight of single battery (g)	Approx. 18g
	Number of batteries per package	2

Change to CD manual

Specification table (6/6)

	VPL-VW1100ES
Optional Accessories	Projector Lamp: LMP-H330 (for replacement)
	Projector Suspension Support: PSS-H10
	3D Glasses: TDG-PJ1
	3D Sync Transmitter: TMR-PJ1

LMP-H330



PSS-H10



TDG-PJ1



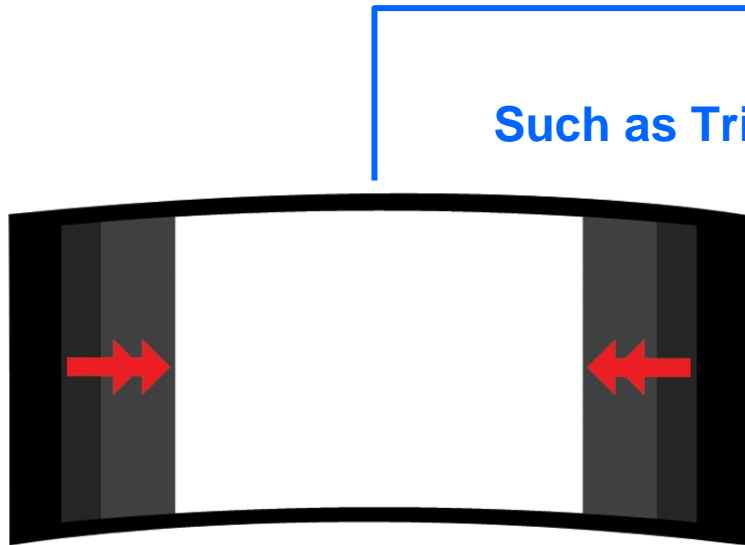
TMR-PJ1



Benchmark/Demonstration

- **Picture Comparisons**
- **Recommended Screen System**
- **High Quality Contents**

Recommended Screen System



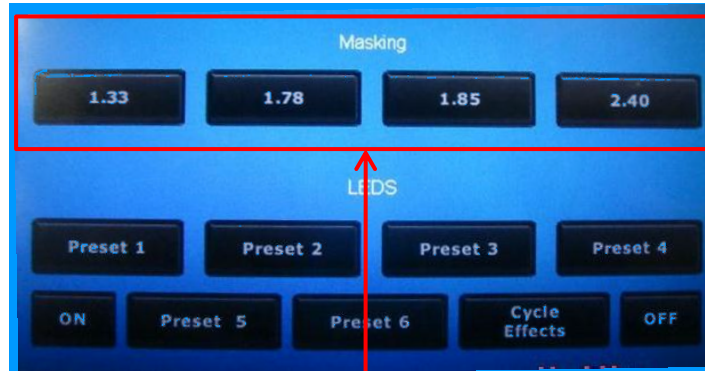
Electric masking system

and "Picture position"

Synchronization is better solution

Control integration

Such as Trigger connection or Crestron and others.



Can select multi aspects via control panel



Picture Position



1. **2.35:1 screen with electrical masking**
2. **Size is around 150" (Life size height)**
3. **Gain: around 1.0 white matt**
(Evaluation ongoing)



Demonstration

Recommended Screen

Brand	Name	Type	Gain	Resolution	Color Reproduction	Black Level		Others
Stewart	Studio Tek 130 G3	White Matte	1.3	2	3	1		THX/ISF Certified
Stewart	GrayHawk RS G3	Gray Matte						ISF Certified

End