

Tips for Using The XREAL Beam Pro



By George Themelis
August 2025

Outline

- **What is it?**
- **The Positives**
- **Concerns**
- **Tips: How to take better 3D pictures with it**

What is it?

- **Android device**

XREAL (Chinese company)
Model = **Beam Pro**

- **Has two lenses (50 mm apart)**

- **Takes 3D pictures & 3D video**

- **Available on Amazon USA:**

- 6G+128G: \$197
- 8G+256G: \$246
- 8G+256G (5G): \$296

I got mine in Sept. 2024 after I saw nice 3D pictures posted on Facebook by Gert-Jan Walkers. I had it less than a year and already have taken some wonderful pictures with it.



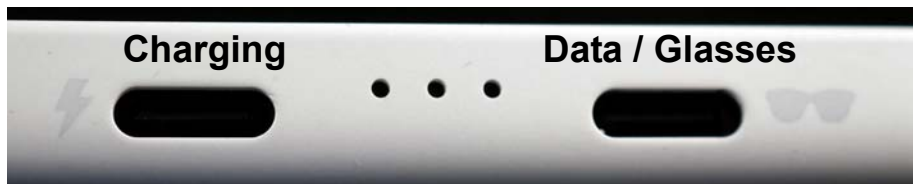
3D Specifications

- **Stereo Base: 50mm**
- **Field of View: Ultra-wide** (~18mm equiv.)
- **Still 3D pictures: jpeg** (SBS 2x3840x2880 pixels 11 MP per side, 4:3 aspect ratio. The size of images is ~ 4-6MB)
- **3D Video: mp4** (SBS 2x1920x1080, 60 or 30 fps)

Note: In 2D mode there are more options (picture format, aspect ratio, use of LED light, video, etc.). Also, the left lens focuses in 2D but the two lenses appear to be **fixed focus in 3D**.

XREAL Beam Pro Controls

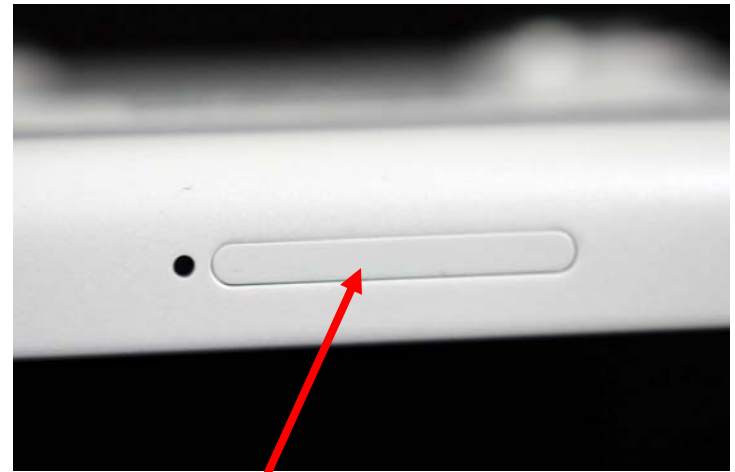
Volume Button
Power Button
Orange Button



2x USB-C Ports

Double-pressing the power button brings the camera up

Pressing (actually, releasing) the **orange button** or the volume up/down buttons fires the shutter



Micro SD Tray. The device comes w/128 or 256 GB internal memory. Can take micro SD cards up to 1T.

XREAL BP Useful Display Settings

Display

Brightness

Brightness level
100%

Adaptive brightness



Turn **Adaptive brightness** off and set brightness at 100%.

With these settings I have no problem seeing the screen at daytime

Other display controls

Auto-rotate screen



Screen saver

On / Clock

Double-tap to wake up the screen

Double-tap while the screen is off to wake it up



Turn **Double-tap to wake up the screen** off.

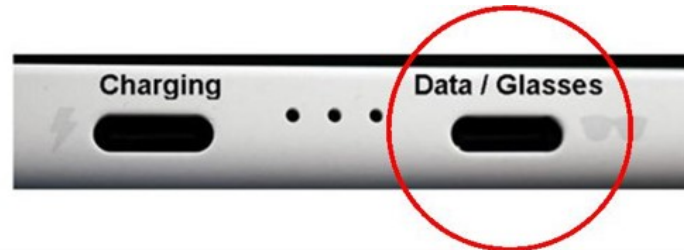
The XBP will not turn on unless you hit the power button.

How to Transfer Pictures to Computer

Direct Cable Connection

1) Use a USB-C cable that allows **data transfer** (some cables only allow charging)

2) Plug the cable to the “**glass**” **C-port** of the XBP and to the computer



3) Go to Settings > Connected devices > USB
> select “File Transfer”

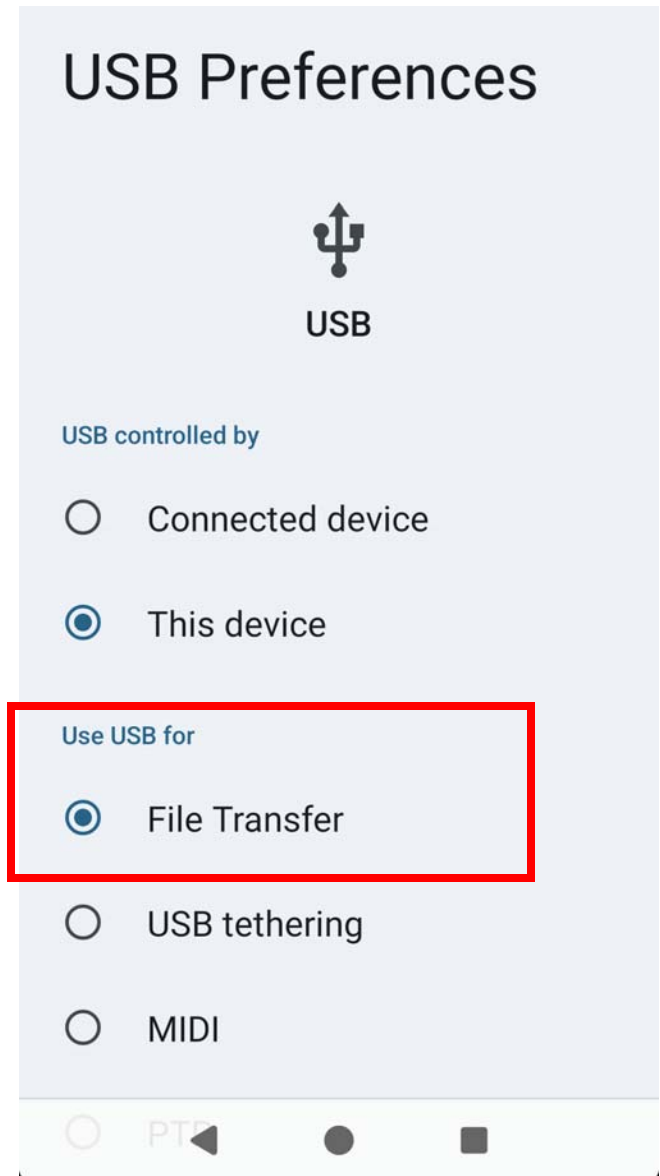
Note: this is an Android security feature and you have to do it every time. There is a way to avoid this step by turning on "Developer Options" (I have not done that).

You should see a folder **Beam Pro** > **Internal shared storage**

Open the **DCIM** folder and then the **Camera** folder

All the pictures and videos are stored there

The 3D pictures are named like this: SV_20240908_172655. This picture was taken in 2024 (year) 09 (month), 08 (date), 17:26:55 (time, 5:26:55 pm). The video files start with SV. 2D pictures start with IMG, 2D video starts with VID



12:21 M P U G



Please rotate Beam Pro to landscape

Spatial video

Spatial photo

Nice touch: Message stops people from using the device incorrectly (vertically)



12:21 M P U G

Spatial photo



Spatial video

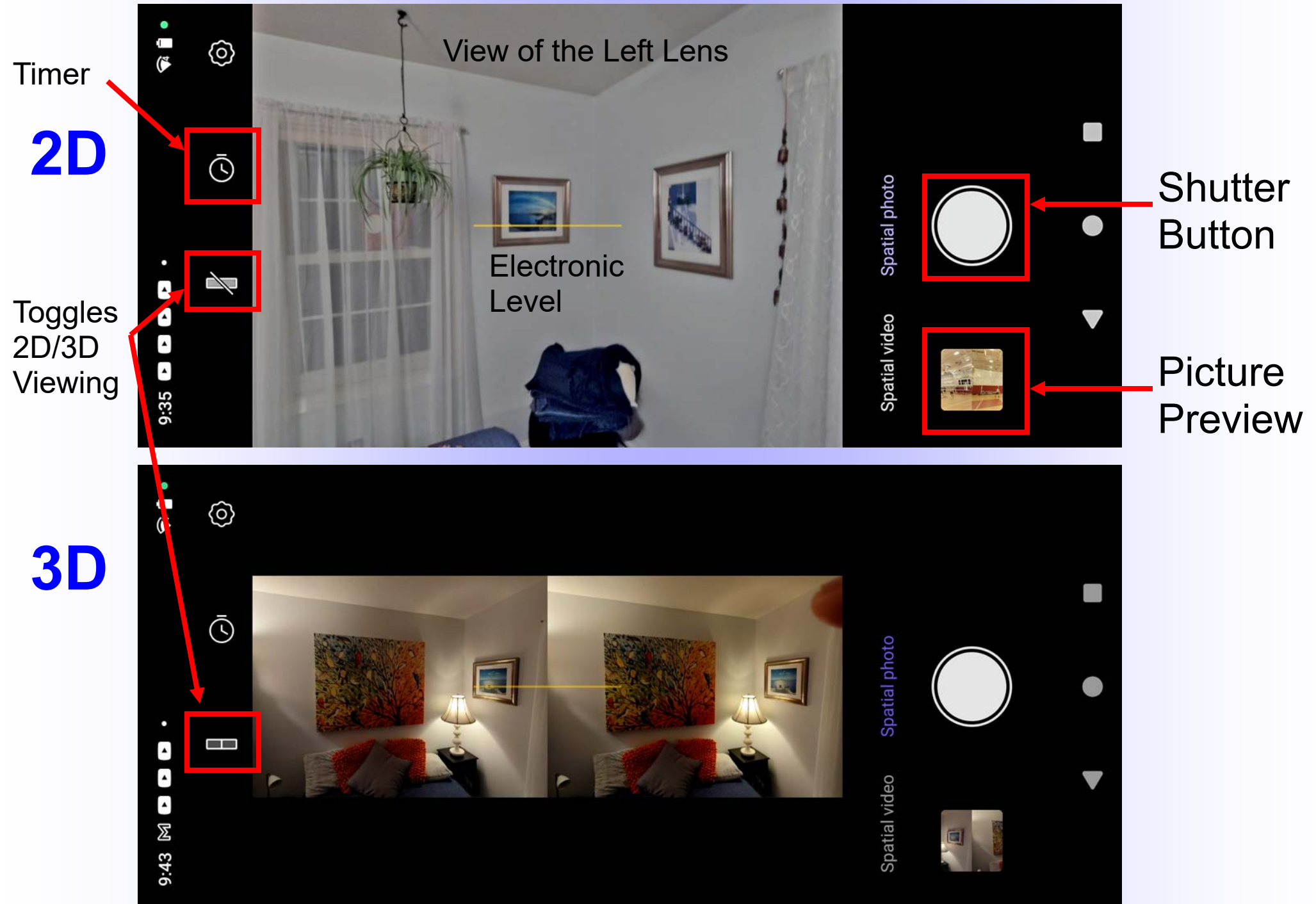


Choices for pictures:

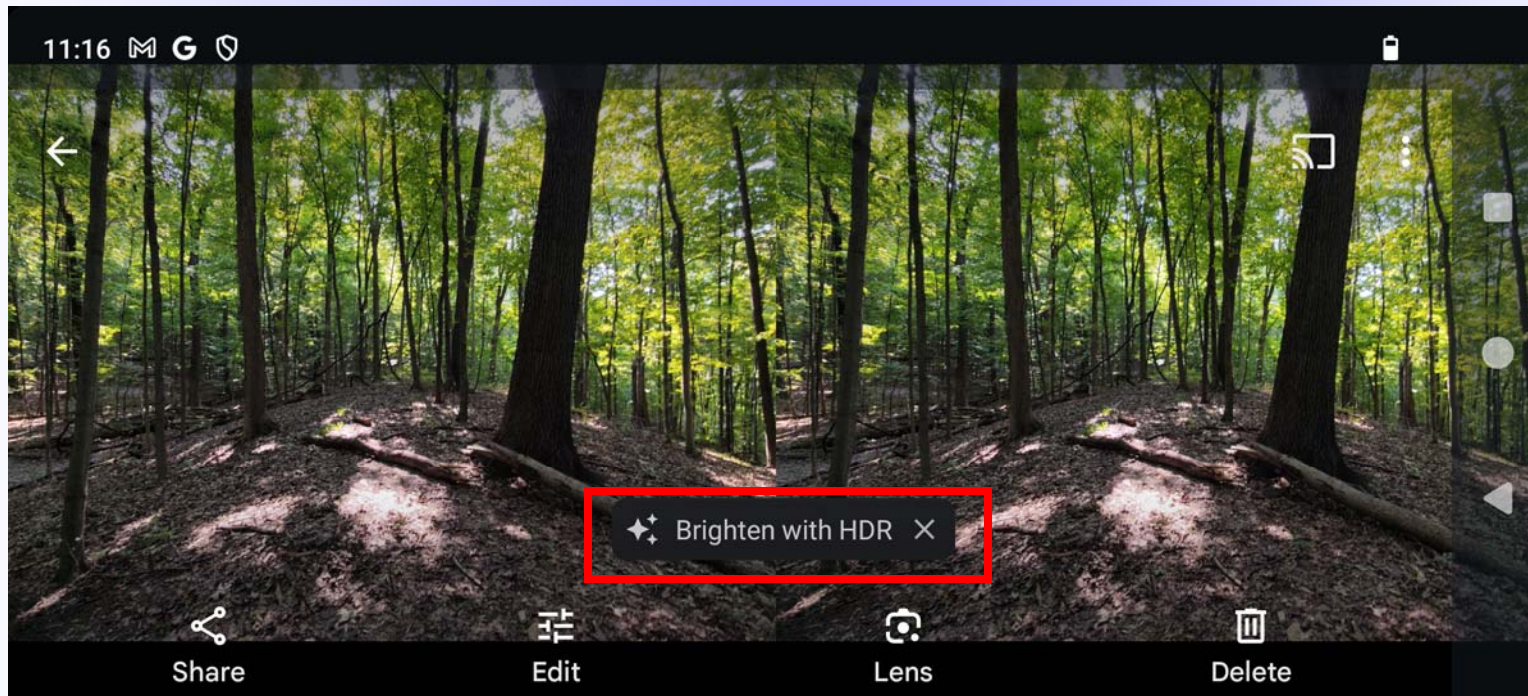
- ◇ Video
- ◇ Photo
- ◇ Spatial video
- ◇ Spatial photo

← 3D

Two Viewing Modes in 3D



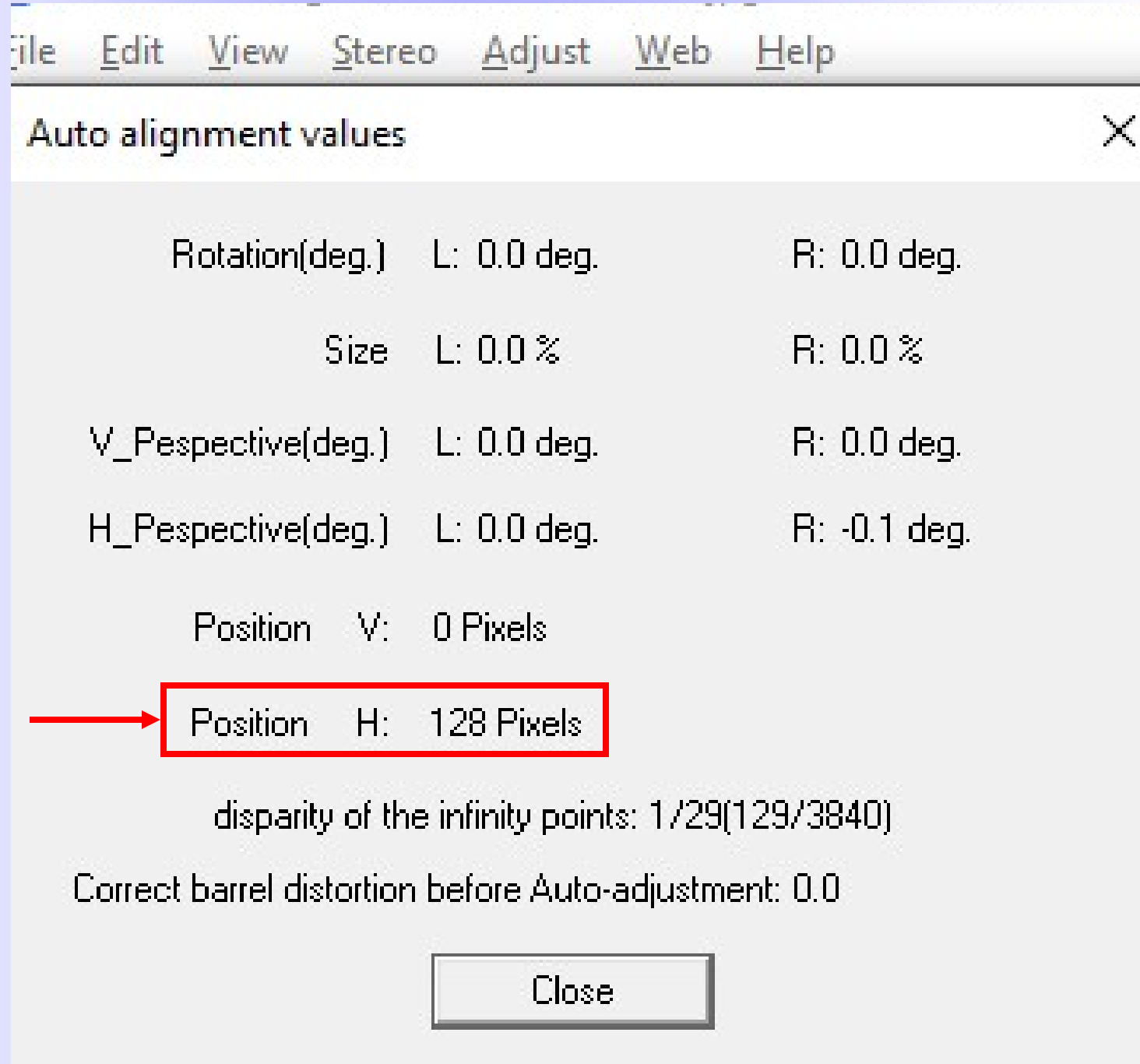
Picture Preview & Editing



75 mm



Perfect Alignment



**Except for
the Stereo
Window
which is at
infinity**

The Positives

- **Phone Form & Functionality**
 - Does not attract **attention**
 - **Compact & easy to carry**
 - Can be used by **anyone**
 - **Water & shock** resistant
 - Good **battery life**
 - **Automatic exposure & stabilization**
 - Can use standard **phone accessories**
- **Easy to Use** (both physically & format wise)
- **Good Quality** of 3D pictures & 3D video
- **Good for a variety of 3D pictures** many not possible with a standard 3D camera

XREAL BP Auto Exposure

Aperture Fixed (f2.2)

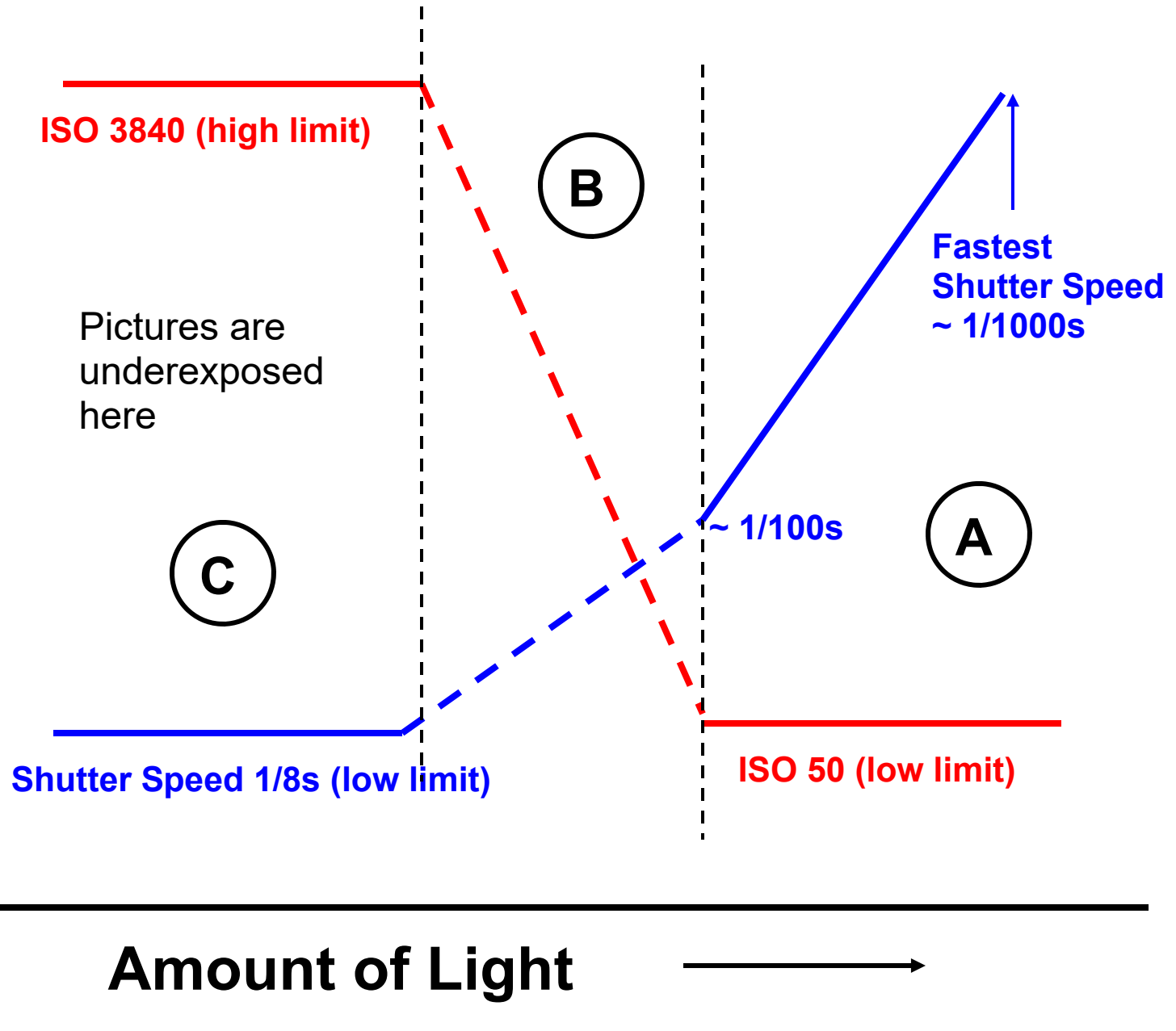
Shutter Speed and
ISO change

A: Good light. ISO
fixed at 50. Shutter
speed changes from
1/100 to about
1/1000s

B: Transition:
Shutter speed drops
and ISO increases.

C: Low Light: Shutter
speed bottoms down
to 1/8s and ISO
peaks at 3840

Shutter Speed ISO



Exposure Control



In **2D viewing mode**, **touch the screen**. This will create a square and adjust the exposure of the area outlined.

Hold your finger and **exposure is locked** (see picture)

Adjust the exposure by **sliding the “sun” scale**. Recompose.

(The exposure will stay locked until the screen is touched. It will stay locked even if a picture is taken.)

XREAL Beam Pro

AUTO White Balance



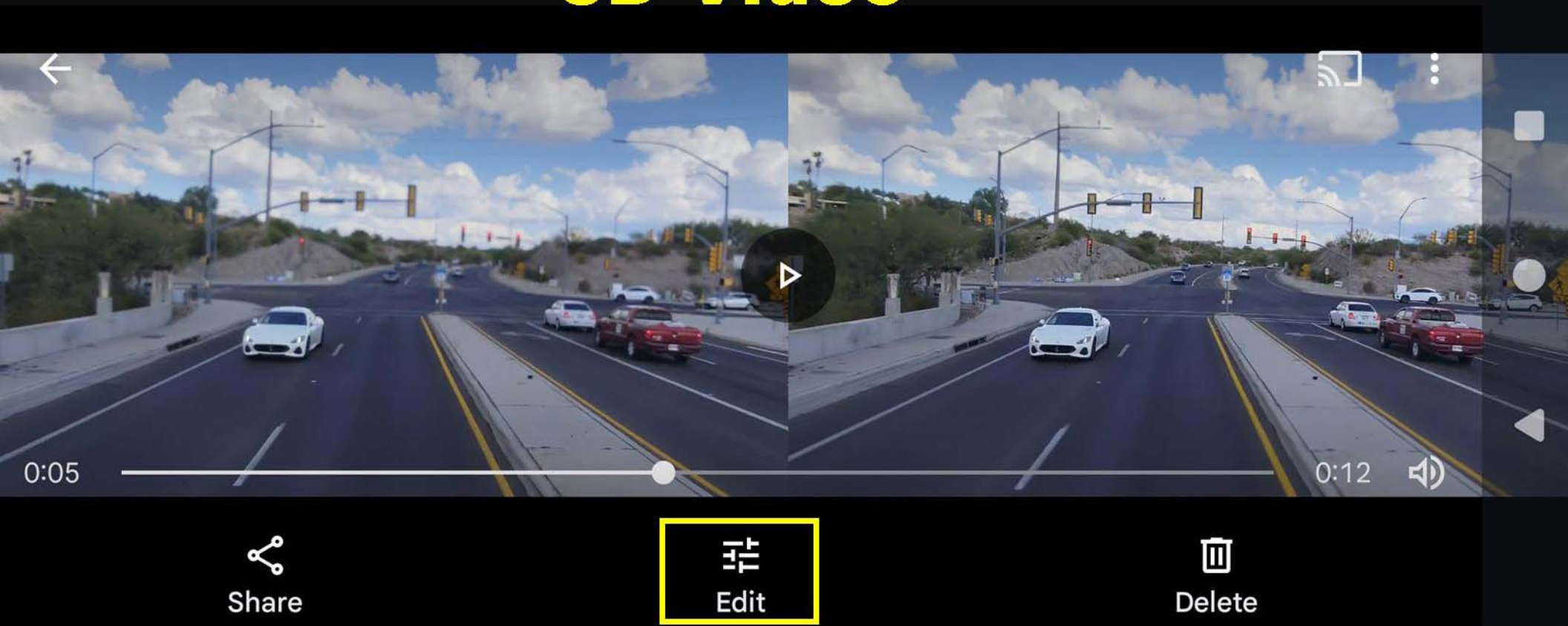
Corrected with Editing



Plethora of Accessories



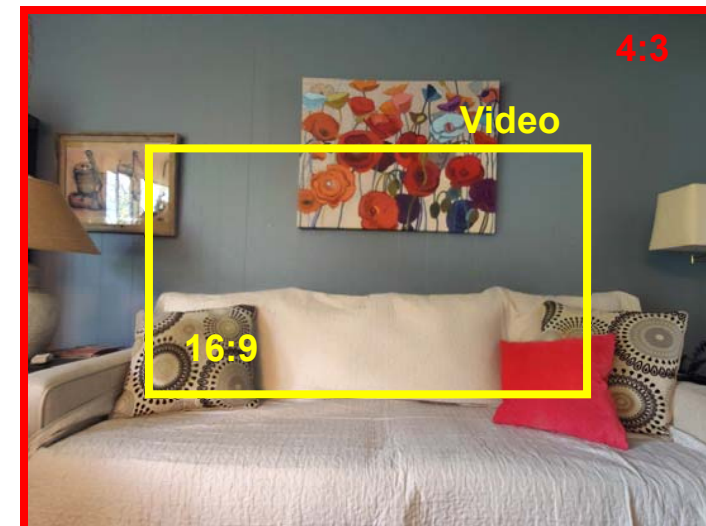




- **Perfectly aligned** (except for the stereo window)
- Very nicely **stabilized**
- Effective Focal Length ~ **35mm** (much easier to work with)
- **Simple format**, easy to edit with 2D Video Editors
- Some **editing** is possible in the device (crop, adjust exposure, change speed, capture/export a still 3D frame)

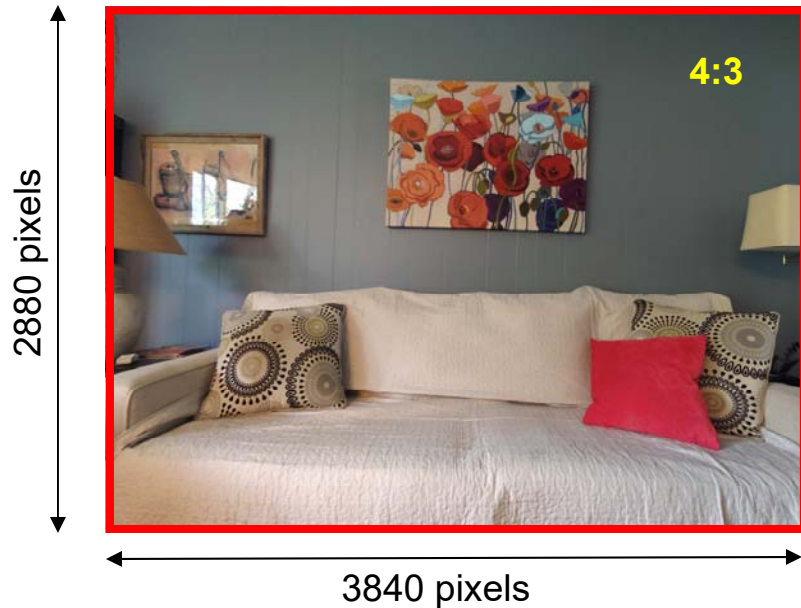
Just the 3D Video is worth the XBP price

3D Still



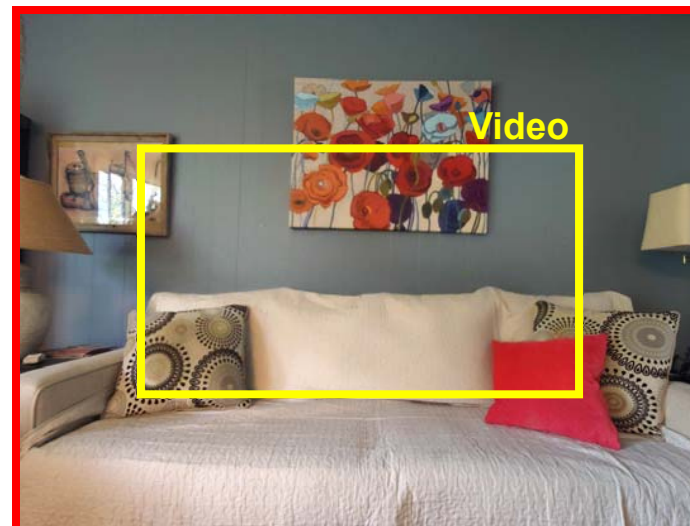
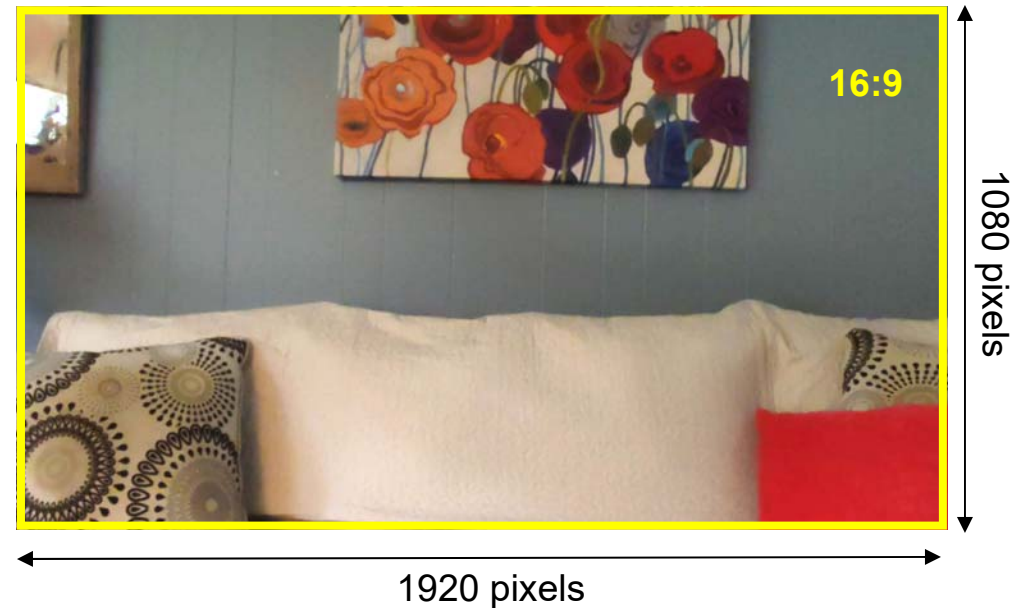
XREAL BP FOV: 3D Stills vs. Video

3D Stills ~ 18mm EFL



~ 2x

3D Video ~ 35mm EFL



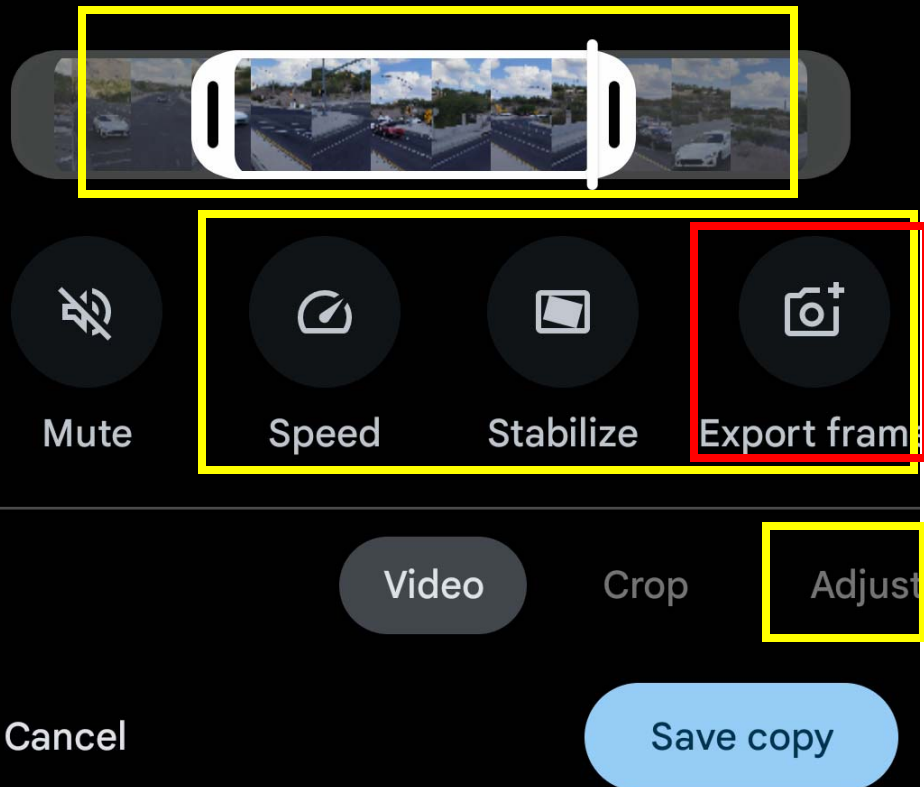
If the XREAL BP was just cropping the original frame, the resolution of the video frame would have been ~2560x1440 pixels. The camera resizes this to 1920x1080.



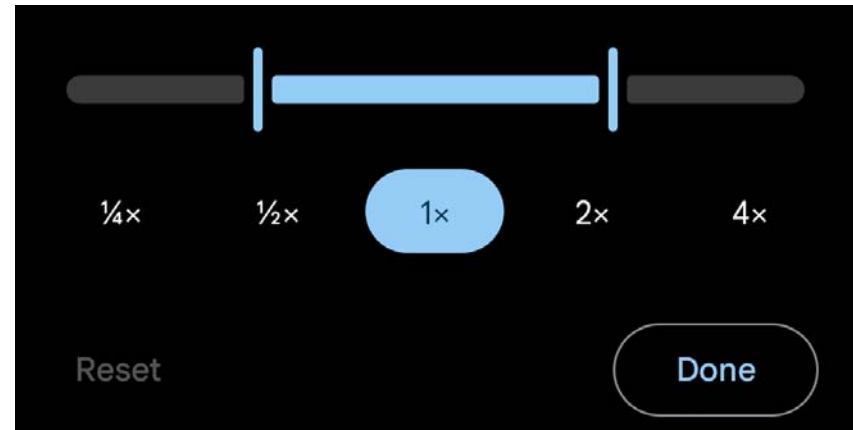
Hit Edit, then:

- Select start/end points
- Change speed
- Adjust levels, etc.
- Save a copy - also Export Frame

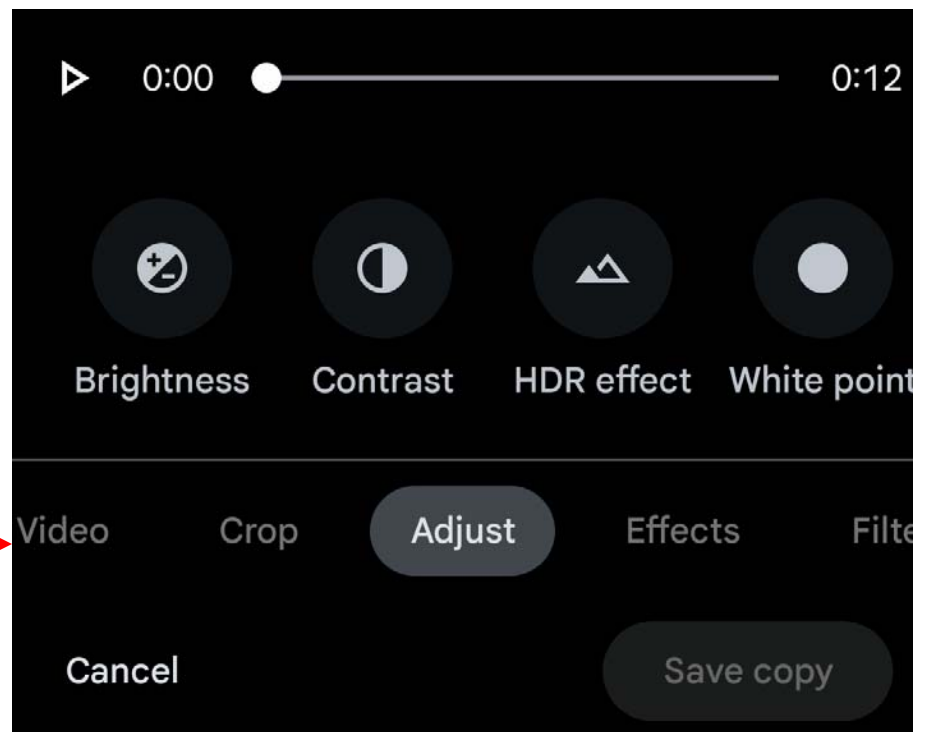
00:05 / 00:05



Change Speed



Adjust levels, etc



When done, save a copy

Questions / Concerns

- **Stereo base (50 mm) is too narrow**
 - **Field of view (18 mm equiv.) is too wide**
 - **Wide Angle Distortion**
 - **Not enough depth**
-
- **No camera controls**
 - **No 3D screen**
 - **Image quality?**
 - **“This is no better than what I am using now”**

Depth “Not Enough”

- Stereo base (50 mm) is too narrow **vs. Fuji's 75 mm**
- Focal Length (18 mm equiv.) is too short **vs. Fuji's 35 mm**

Depth ~ (Stereo Base) x (Focal Length)

$$\text{XREAL (50x18) / FUJI (75x35) = 0.34}$$

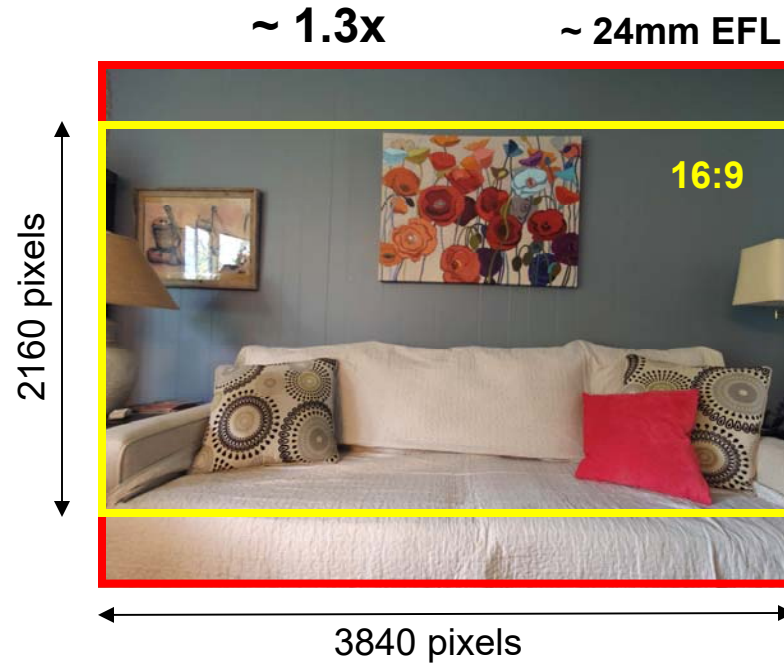
XREAL shows ~ 1/3 of the “depth” of the Fuji

**** All other things being the same**

Make adjustments:

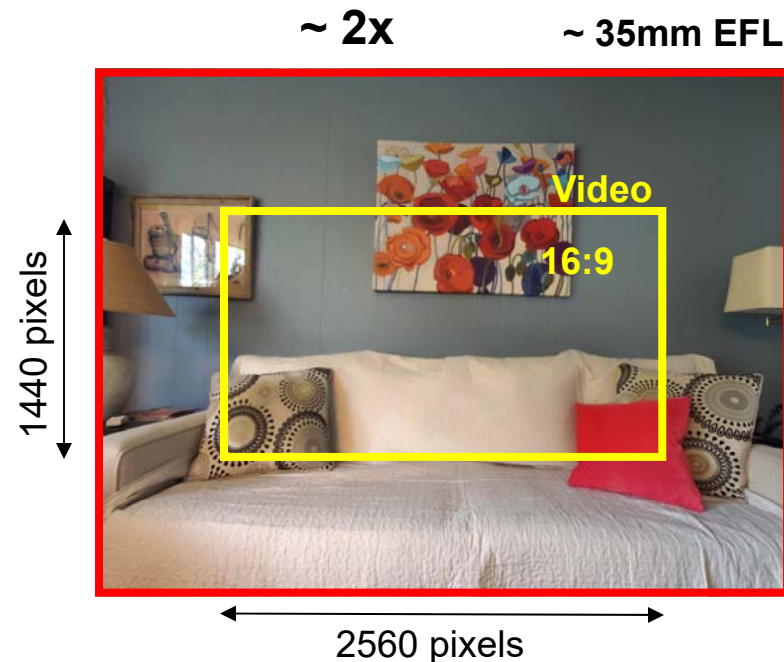
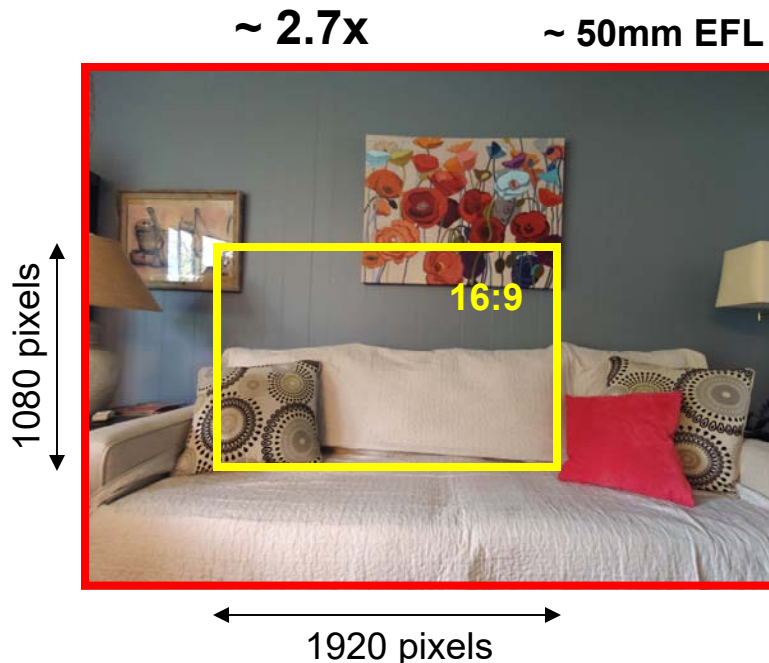
- Come closer (instead of 2.1 m - $0.34 \times 2.1 \sim 0.7$ m / 2.5 ft)
- If the main subject is far away, include foreground

FOV too Wide? Cropping to the rescue!



Simple
cropping from
4:3 to 16:9
aspect ratio
changes the
EFL ~24mm

Maximum
cropping
maintaining HD
resolution
(1920x1080)
EFL ~50mm



In-between, a
2x enlargement
results in an
EFL ~35mm

(This is the same
as the video
frame. The
resolution is
~2560x1440
pixels but in
video the
camera resizes
this to
1920x1080)

Distortion Concerns




Pincushion Distortion



Example of Pincushion Distortion
NOT from the XREAL BP

Careful testing shows that **the XBP does not have any distortion**



Perspective “distortion”

Normal Perspective
exaggerated by the use of
ultra-wide angle lenses



Original “Distorted Image”

Note the converging lines in the back, a normal perspective, exaggerated by the wide angle lenses. This was caused by tilting the camera down.

Corrected with SPM

Using SPM Horizontal Perspective Rotation you can straighten the vertical lines. This automatically removes the distortion of the faces.



SPM Easy adjustment (shortcut “K”)

Not “easy” or intuitive but very powerful.
Can correct rotation errors (“Basic”), vertical or horizontal perspective, and barrel distortion.

Indication

Both Images(Anaglyph)

Left(Red)Right(Cyan)

Flashing20 x 10 ms.

100% SIZE

Edge detection

☒ Show Grid17

☐ Reverse Perspective Rotation

☒ link both rotations together

Basic

Barrel

V_Pers.

H_Pers.

Focal Length: 50 mm - FOV=39.4 Deg.

◀

▶

35

50

75

Horizontal Perspective Rotation

L : -21.5 Degree

◀

▶

0

R : -21.5 Degree

◀

▶

0

An anaglyph 3D image showing three people sitting at a table with various bottles. A black grid is overlaid on the image. A dashed red line runs vertically on the left side, indicating a perspective distortion that needs correction.

The same anaglyph 3D image as above, but after applying horizontal perspective correction. The grid lines are now parallel, and the dashed red line is no longer present, indicating that the perspective distortion has been successfully corrected.

Slide the scale until the converging lines become parallel

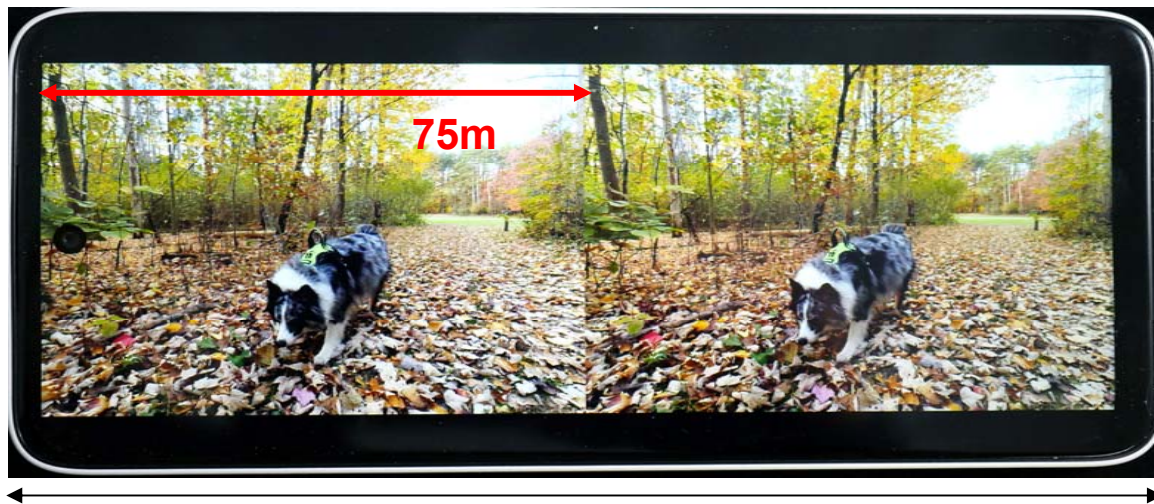
Questions / Concerns

- Stereo base (50mm) is too narrow
- Field of view (20mm equiv.) is too wide
- Wide Angle Distortion
- Not enough depth
- No camera controls
- No 3D screen
- Image quality?
- *“I don’t want to have to carry this and a phone”*
- *“This is no better than what I am using now”*



Grip
Shutter Button
Tripod Screw
Cold shoe
Storage for cable

75mm



163mm

Viewing 3D

Use “Glasses” Port

- 3D computer monitor
- 3D TV
- 3D projector
- External Viewer (GOOVIS for example)
- XREAL Air Glasses
- Looking Glass



View the Screen

- Freeview
- Use a Viewer (stereoscope)

Prismatic Stereoscope (vintage)



Lite OWL

Simple Stereoscope



Requirements for a simple stereoscope → $FL > 100 \text{ mm}$
 $IA \geq 75 \text{ mm}$

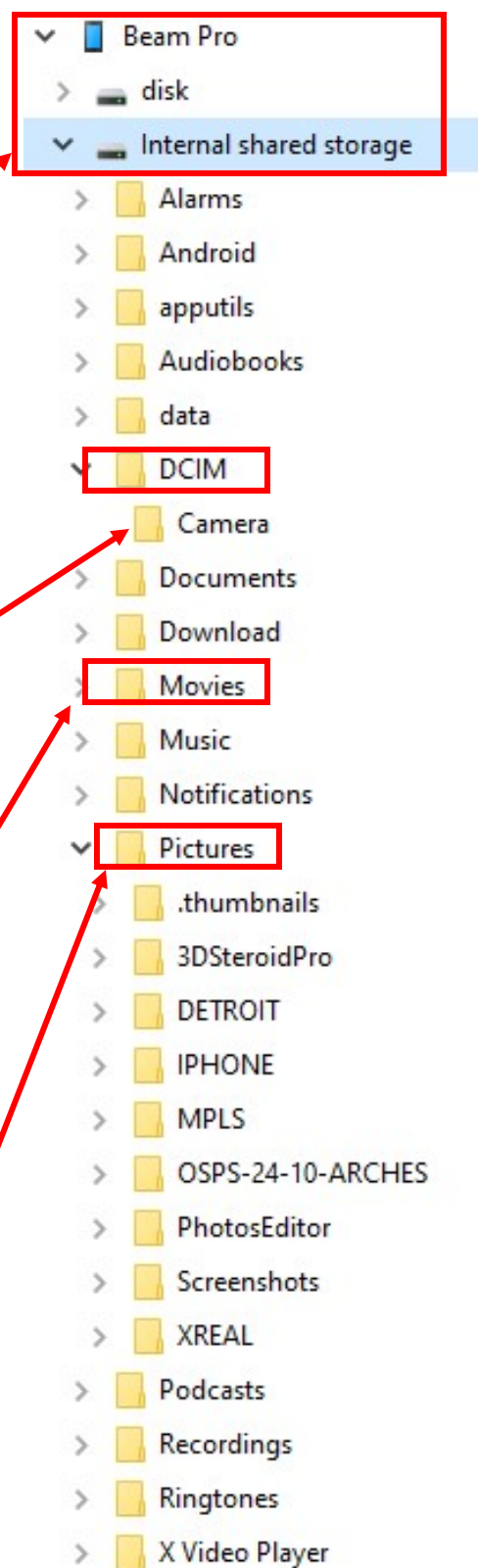
3D Media Player

The XBP has a large storage capacity:

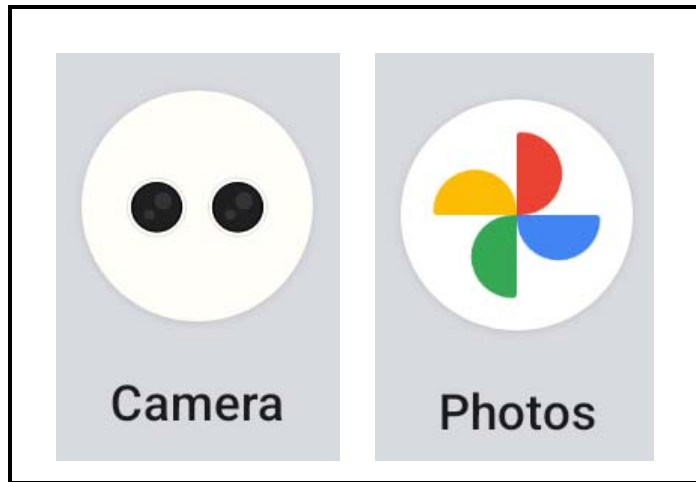
- **Internal Memory:** 128/256GB
- **Micro-SD card**, up to 1T (1000GB)
(a good choice is 256GB)

You can store 3D Content:

- **Pictures taken with the device:**
 - 3D Still Pictures
Example: SV_20241031_113259.jpg
 - 3D Video
Example: SV_20241031_113648.mp4
- **3D Movies**
- **Pictures/video taken with other 3D cameras**

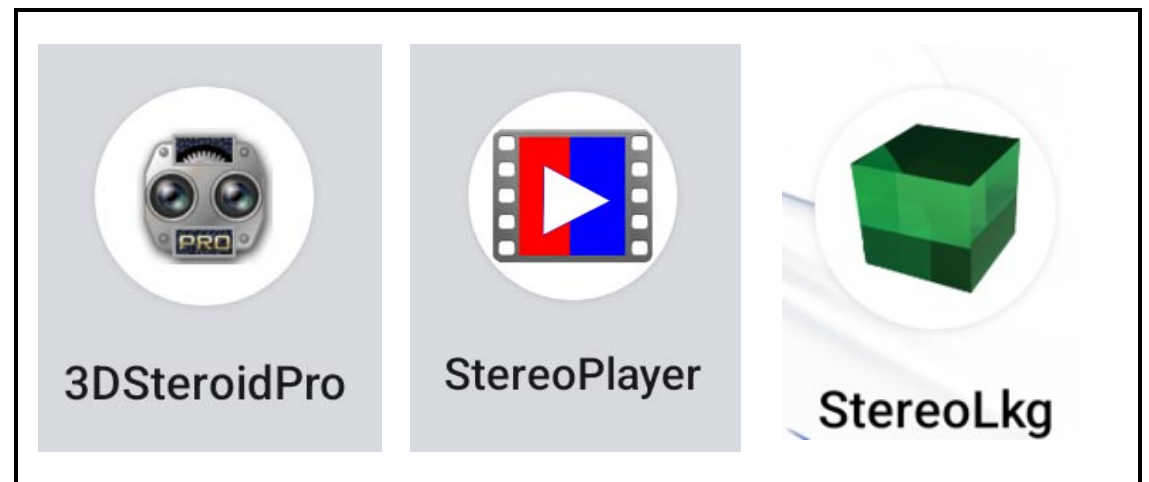


Native 2D Photo apps



Using Different Apps

3D Photo apps by Masuji Suto



Using the 3DSteroid as a 3D Viewer



3DSteroid can be used a stereo viewer for the XBP, in addition to being a 3D editor

As a viewer it has a couple of interesting features, in addition to offering different viewing modes

- It has a “**Slide**” mode (images advance automatically, as in a slide show).
- The volume button can be used as an image advance button
- A remote (Bluetooth) shutter release can advance images (double-clicking advances to the next image, single-clicking reverses the direction of advance)

One limitation of 3DSteroid is that it can only play **still 3D images and not 3D video**
That's why Masuji created the **StereoPlayer app**

The Positives

- **Compact & easy to carry**
- **Very easy to use**
- **Can use standard phone accessories**
- **Unique** combination of **base & FOV**
- **Very responsive & large touch screen**
- **Good battery life**
- **Water & shock** resistant
- **Good stabilization**
- **Good low light performance**
- Does not attract **attention**
- Can be used by **anyone**
- **Fixed focus** in 3D
- **Simple file formats** & file naming
- **Perfect alignment**
- **Simple post processing**
- Can use many **apps**
- Many **viewing options**
- **3D Media player**
- **Two USB-C ports**
- **Good 3D video** for the casual user

XBP's Strengths

- **3D Documentation**
- **Spontaneous photography**
- **Creative compositions**

Concerns / Wishes

- **Image Quality?**
- **Fully Automatic Exposures**
(no Manual / Control of shutter speed)
- **Short base & wide FOV?**

My Goal

- **Take advantage** of the XREAL Beam Pro's unique characteristics
- Produce pictures that **look normal**
- Take **interesting / creative pictures** or pictures that **no other camera can take**

Outline

- **What is it?**
- **The Positives**
- **Concerns**
- **Tips: How to take better 3D pictures with it**

Tips for Using the XREAL Beam Pro

BEFORE

- Find a good way to carry it
- Practice accessing the camera quickly
- Charge battery & carry external battery
- Carry any accessories you might need

DURING

- Think before you shoot
- Try to hold the camera vertically & horizontally aligned
- Come close to your near subject (2.5 ft / 0.5 m or closer)
- Compose with near & mid-range depth
- Keep an open eye for unusual compositions
- Fire the camera carefully under low light
- Utilize exposure compensation (if needed)
- Take lots of pictures

AFTER

- Study the picture on the screen
- Do on-camera editing (optional)
- Crop & fix window
- Further photo editing

Before Tips

- Find a good way to carry it and always have it with you!
- Practice accessing the camera quickly
- Charge battery & carry external battery
- Carry any accessories you might need



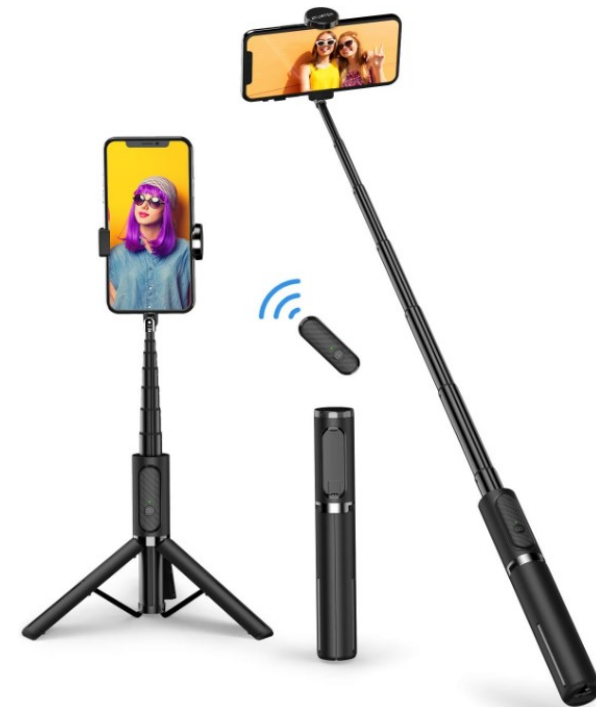
Oktay Akdeniz & stealthy XBP for street photography

My most Useful Accessory:

Selfie Stick Tripod

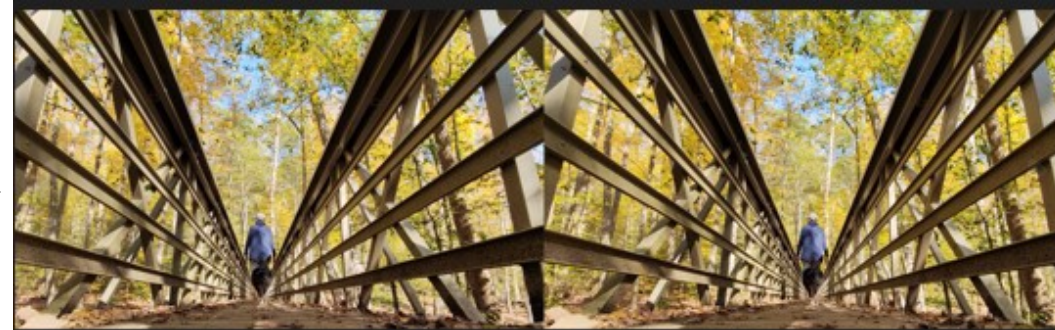
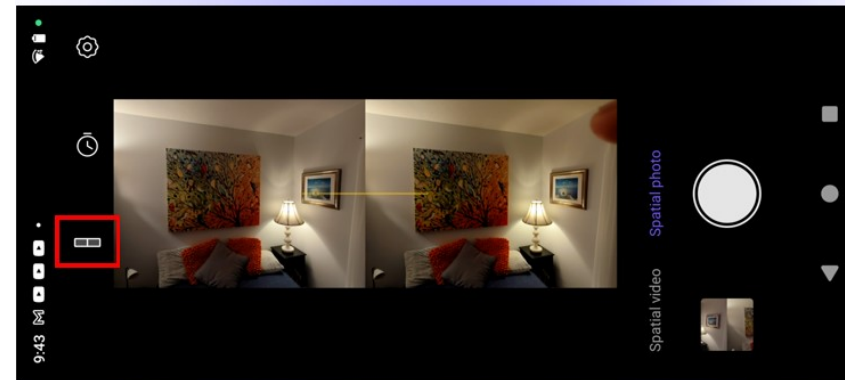
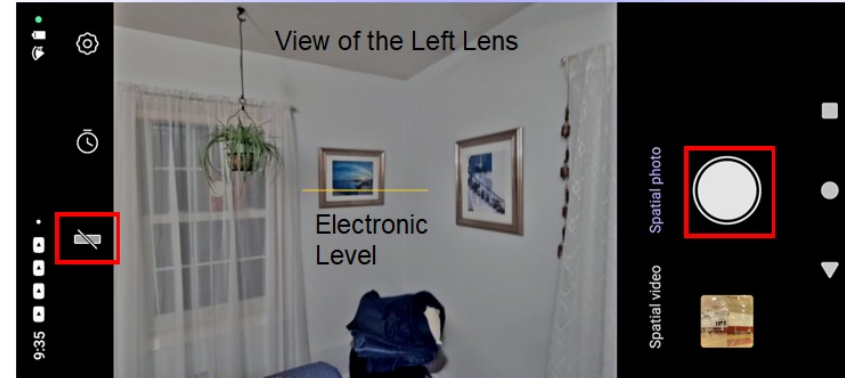
Has 4 functions:

- Handle
- Selfie-stick (8"-31")
- Tabletop tripod
- Remote firing of camera



During Tips

- **Think before you shoot**
Study the screen →
- **Try to hold the camera vertically & horizontally aligned**
- **Come close to your near subject**
(0.6m / 2.5 ft or closer)
- **Compose with near & mid-range depth**
- **Keep an open eye for unusual compositions** →
- **Fire the camera carefully**
(especially under low light) →
- **Utilize exposure compensation**
(if needed)
- **Take lots of pictures**



- Instruct people to stay still
- Take a deep breath
- Lightly touch the on-screen shutter button
- Or fire the shutter remotely

After Tips

- Study the picture on the screen
- Do on-camera editing (optional)
- Crop & adjust window
- Further photo editing

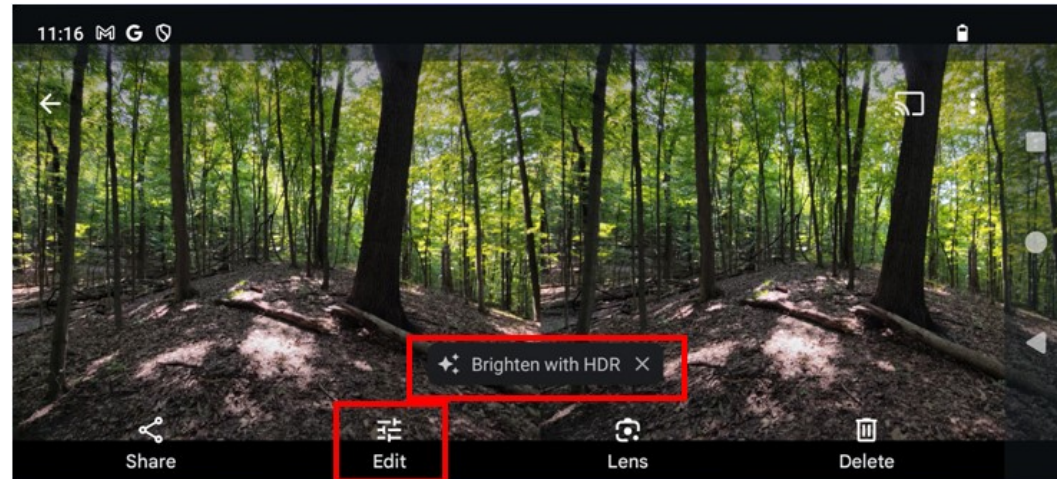
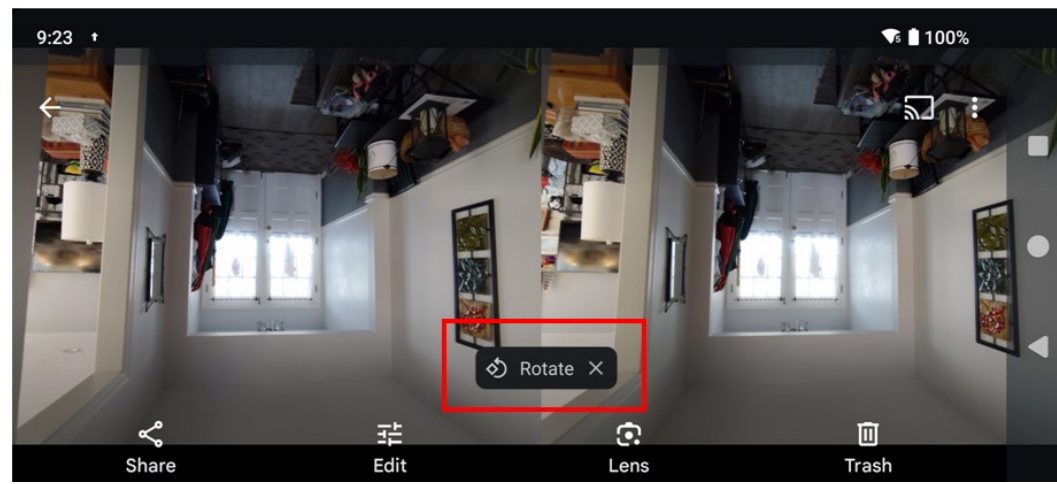


Photo Editing done here:

- Crop
- Adjust stereo window
- Adjust exposure
- De-noise
- Sharpen

What is this for?

Not good for **good quality** landscape 3D or anything that requires **long FL**, **large stereo base**, or control of **shutter speed** (portraits, wildlife, macro, sports, fireworks, etc.)

But great for:

- **Spontaneous, creative & fun** 3D photography
- Photography in **confined areas** (inside house, restaurants, buses, trains, planes, crowded markets, etc.)
- **Travel & Street** photography with a camera that fits in your pocket
- **3D Documentation & memories**
- **3D Video** “the easy way”
- **Many types of 3D** using a **huge selection of “phone” accessories** (head/body straps, underwater cases, etc.)