# YUV sampling in Vulkan VK_KHR_sampler_ycbcr_conversion

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# What is YUV?

## A color model

1. What is YUV?
    1. is describe colorspace that are encoded using YCbCr
    2. encodes color image or video taking human perception into account
    3. allows reduced bandwidth for chrominance components, compared to RGB
    4. Y — Luminance component
        1. Physical linear-space brightness
    5. U — blue projection
    6. V — red projection

# Why YUV is some kind of complicated?

## Video compression

1. Why YUV is some kind of complicated?
    1. Planar: Each color component is packed in different 2D images
    2. Luma: Y refers to luminance
    3. UV(CbCr) refers to chrominance(color)
    4. Downsampled chroma. Less bandwidth on color is an easy way to save space.
    5. Different various of YUV format…
        1. How many planes? 2 or 3
        2. Which color component comes first?
        3. How many bit per component? 8-bit or 10-bit?
        4. How much is chroma downsampled? 2x?
        5. Where is the telex center for the chroma samples?
        6. What is exact color space conversion matrix from YUV to RGB?
        7. How is chroma reconstructed to full resolution?