

INTRODUCTION



The use of projectors has grown widely in the last decade, which has utilized everywhere from the boardroom to classroom, meeting room to auditorium. Projectors offered the best solution for users to present real time information and to interact with the audience. As there is wider array of projectors to choose from, very often it took up most of the buyer's time and efforts for research and comparison purpose. And here is how our buying guide will help you to:

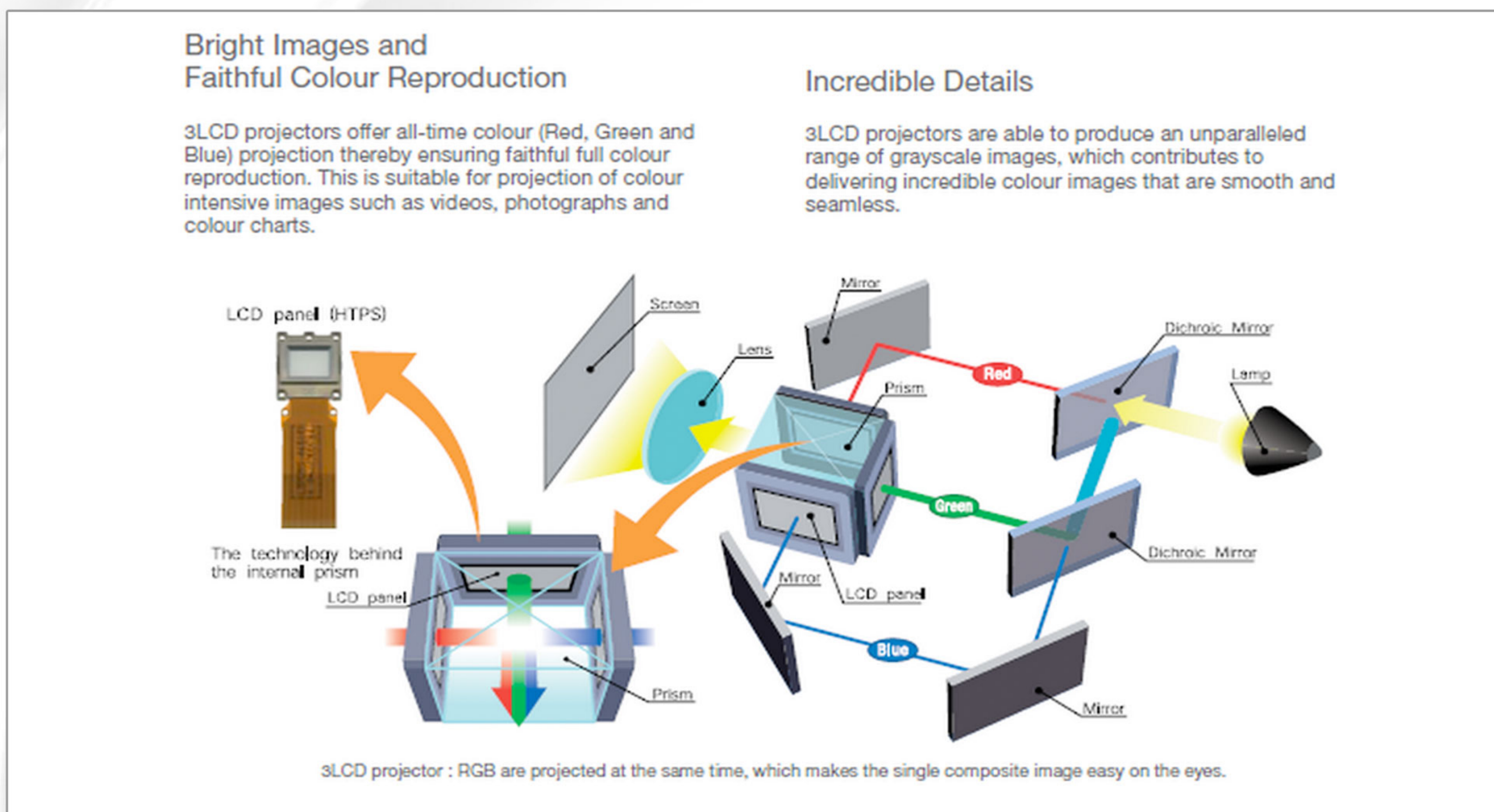
- Clarify the mysteries of modern projector technology
- Assist you in looking for the right projector according to your needs

The below explanation are all the main factors for you to make an informed purchase.

PROJECTOR TERMINOLOGY

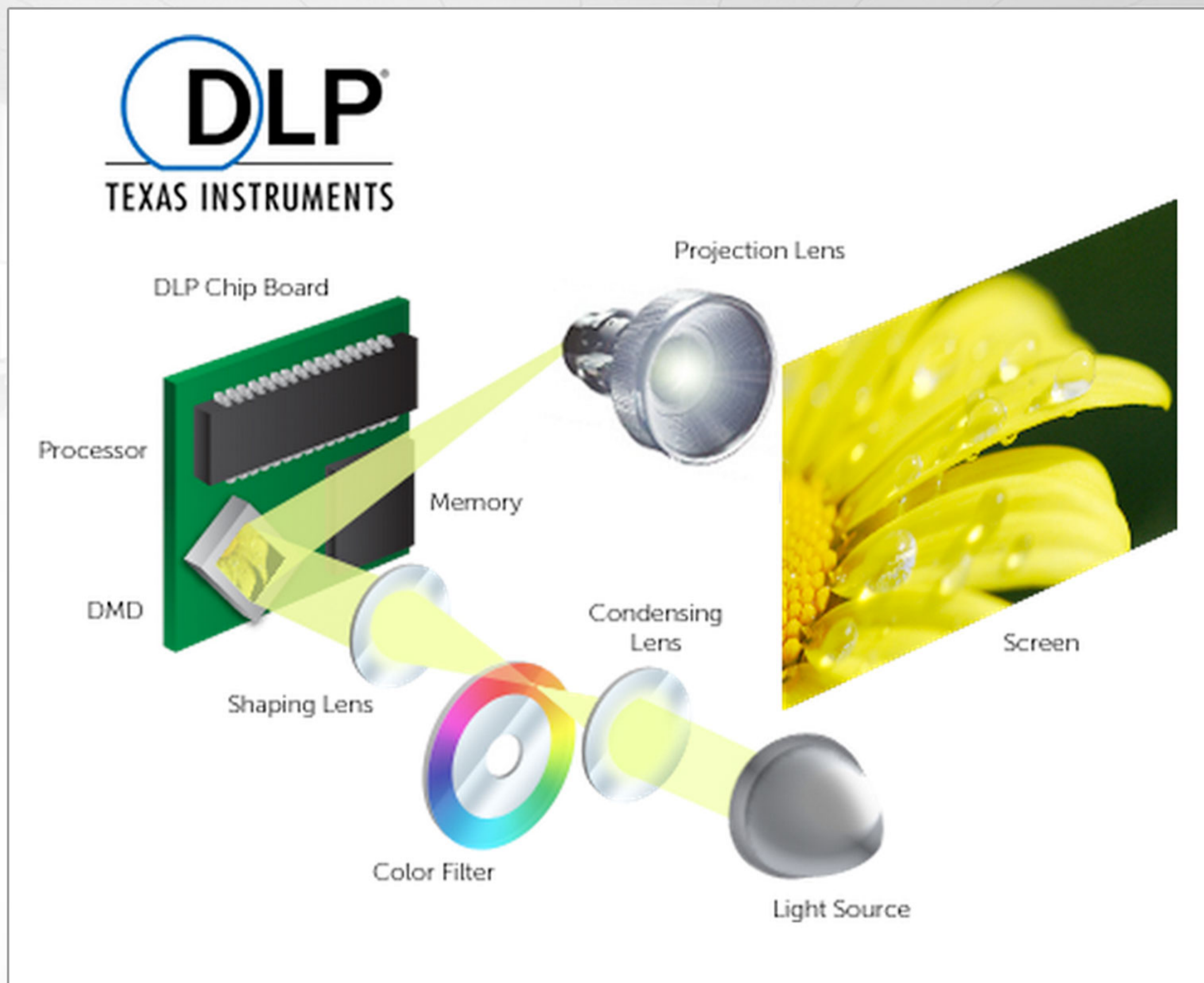
Projector

Before considering what type of projector to buy, you'll need to know how to understand the product description pages. First, projectors use three different technologies:



I. Liquid Crystal Display (LCD)

To display images, LCD (liquid-crystal display) projectors typically send light from a lamp through a prism or series of dichroic filters that separates light to three LCD panels – one each for the red, green and blue. As polarized light passes through the panels (combination of polarizer, LCD panel and analyzer), individual pixels can be opened to allow light to pass or closed to block the light. The combination of opened and closed pixels can produce a wide range of colors and shades in the projected image.



II. Digital Light Processing (DLP)

DLP projectors shine light onto a DMD chip with microscopic mirrors, each mirror being one pixel of the projected image. The light is then reflected through the projector lens onto a screen.

In a projector with a single DLP chip, colors are produced by placing a color wheel between a white lamp and the DLP chip. The color wheel is divided into multiple sectors: red, green, and blue (the primary additive colors); and white (clear) in many cases. Newer systems substitute the primary subtractive colors, with cyan, magenta, and yellow for white. The use of the subtractive colors is part of the newer color performance system called Brilliant Color, which processes the additive colors along with the subtractive colors in order to create a broader spectrum of possible color combinations on the screen.

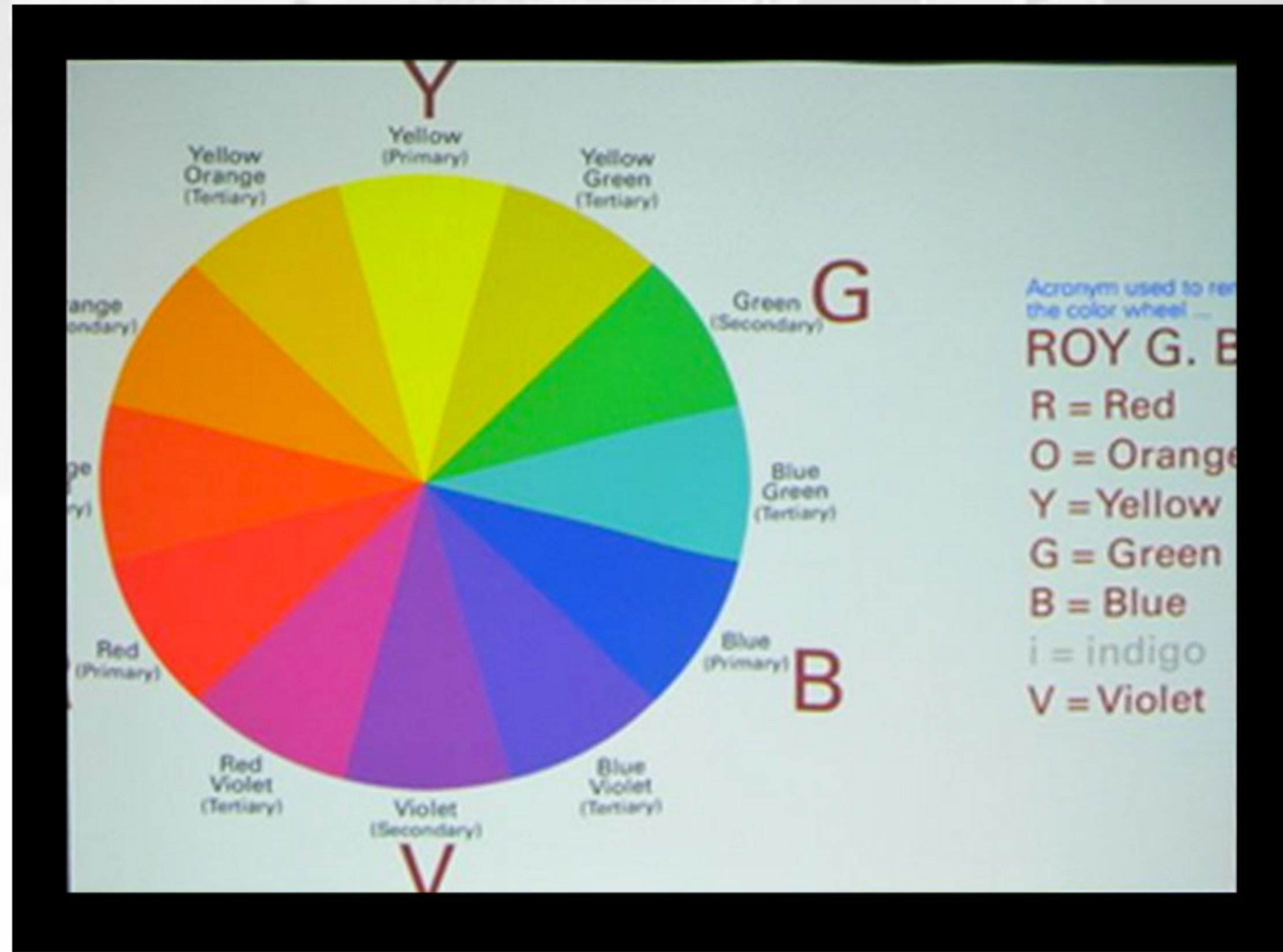
The DLP chip is synchronized with the rotating motion of the color wheel so that the green component is displayed on the DMD when the green section of the color wheel is in front of the lamp. The same is true for the red, blue and other sections. The colors are thus displayed sequentially at a sufficiently high rate that the observer sees a composite of "full color" image.

EXPERIENCE SHARING

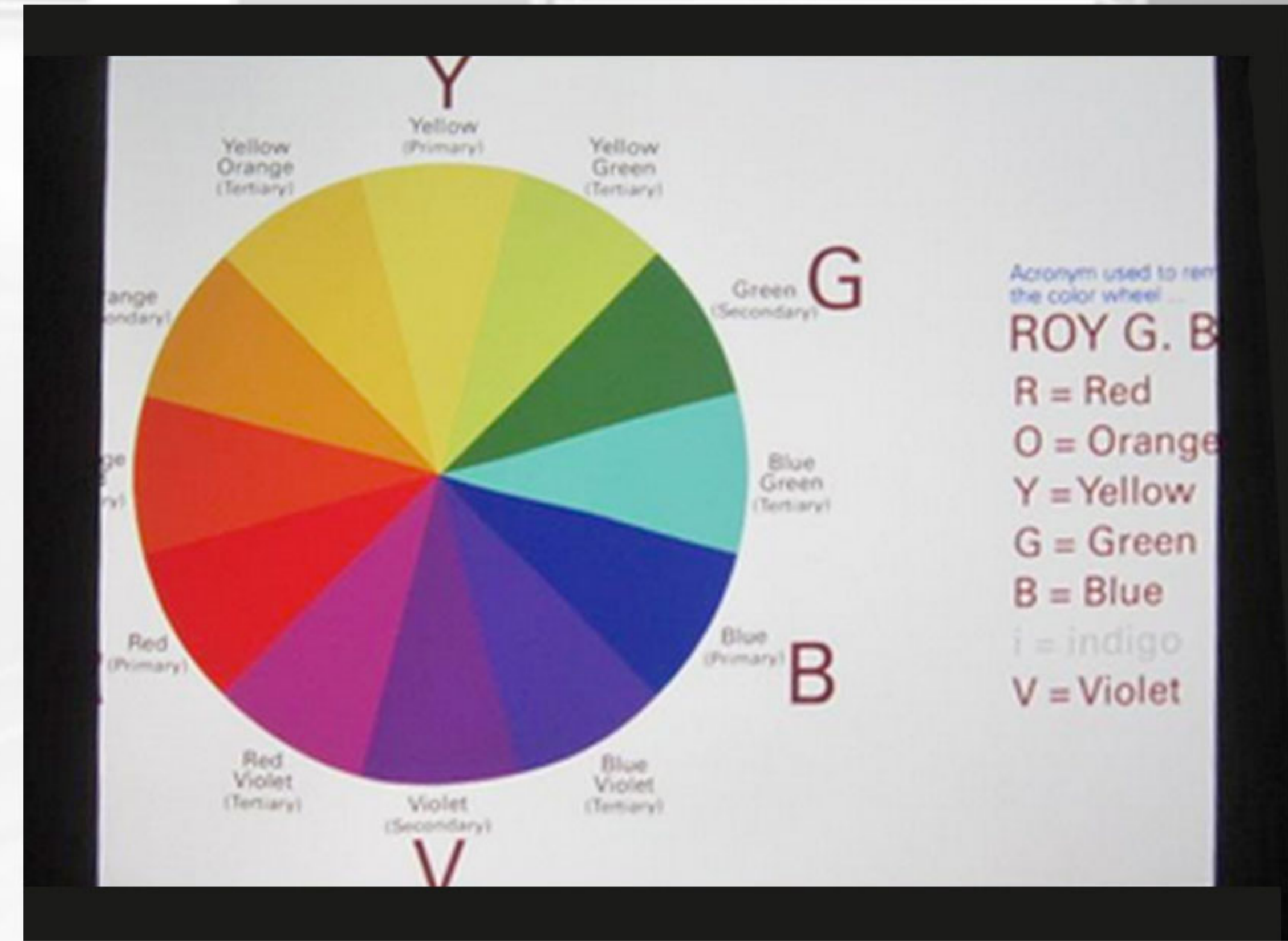
Which technology to choose? LCD or DLP? In terms of data/presentation projection, the LCD technology wins every time when comparing for the color accuracy, specially meeting the needs of those in industrial design. In simple explanation, if your laptop or desktop is using a LCD screen, a LCD projector will give you a similar color output. For DLP technology, it will project a much higher contrast ratio that is more suitable for photo or video viewing, especially while watching horror movie that everything in the scene has different shade of black colors.

COMPARISON

1. Color Accuracy



LCD advantage is color accuracy. Red, green and blue is sharp and vivid.

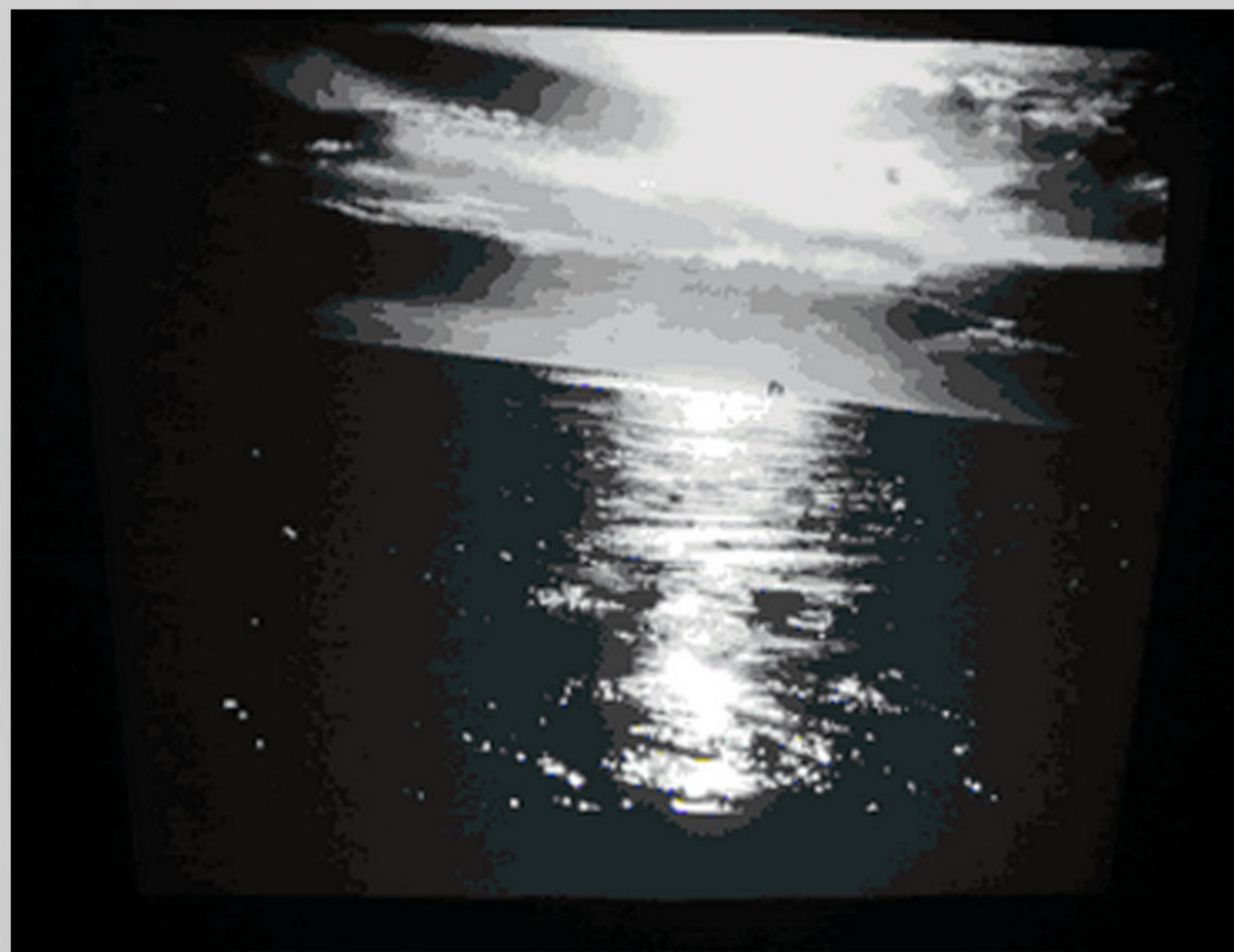


DLP disadvantage is color inaccuracy, most color may appear differently from what you expected. Your manager might start to question you on the corporate logo color is not the official color as of in the laptop view.



Second test shows how the LCD and DLP projector reproduce colors in red, green and blue. DLP technology projects a more realistic, contrast image but the projected color might not be your preferred color.

2. Contrast Ratio



LCD disadvantage is on contrast ratio, typically at 500:1 that will show a greyish image



DLP advantage is on contrast ratio, typically at 2000:1 that projects dark black and pure white

Each technology has its advantages and disadvantages; you may select the type that is usually based on the specific features, which closely related to their price.

TECHNICAL CONSIDERATION

Bright Lighting Environment



Dark Lighting Environment



Environment Lighting

Lighting, without doubt, is the most important factor before you consider purchasing a projector. Even the most expensive, advanced models will struggle to give you a satisfactory viewing experience in a room where ambient light levels are too bright.

Resolution

The pixel count projected to the screen; technical types use alphabetic designations; consumer electronics vendors use pixel counts (number of pixels, listed horizontal by vertical):

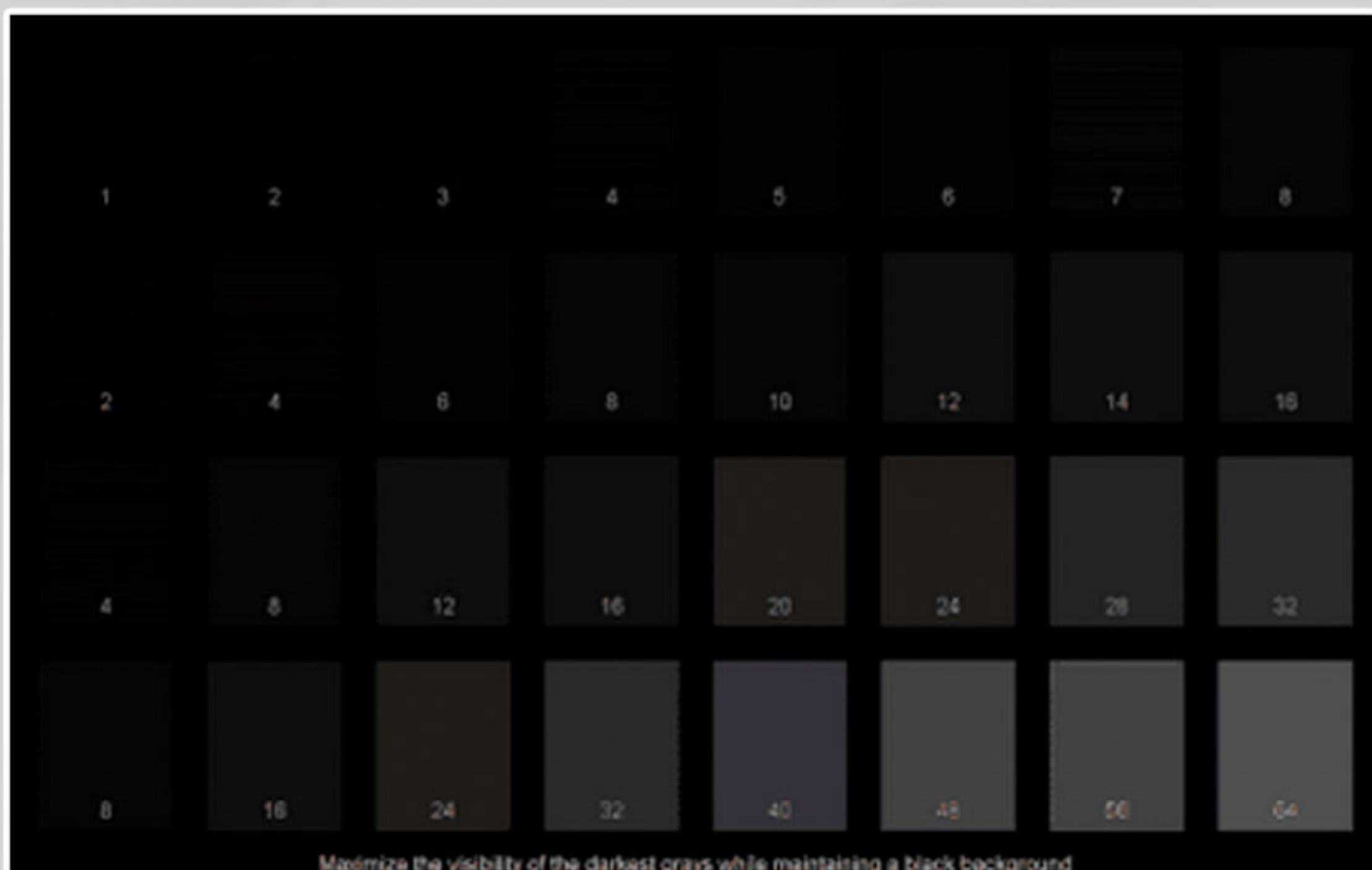
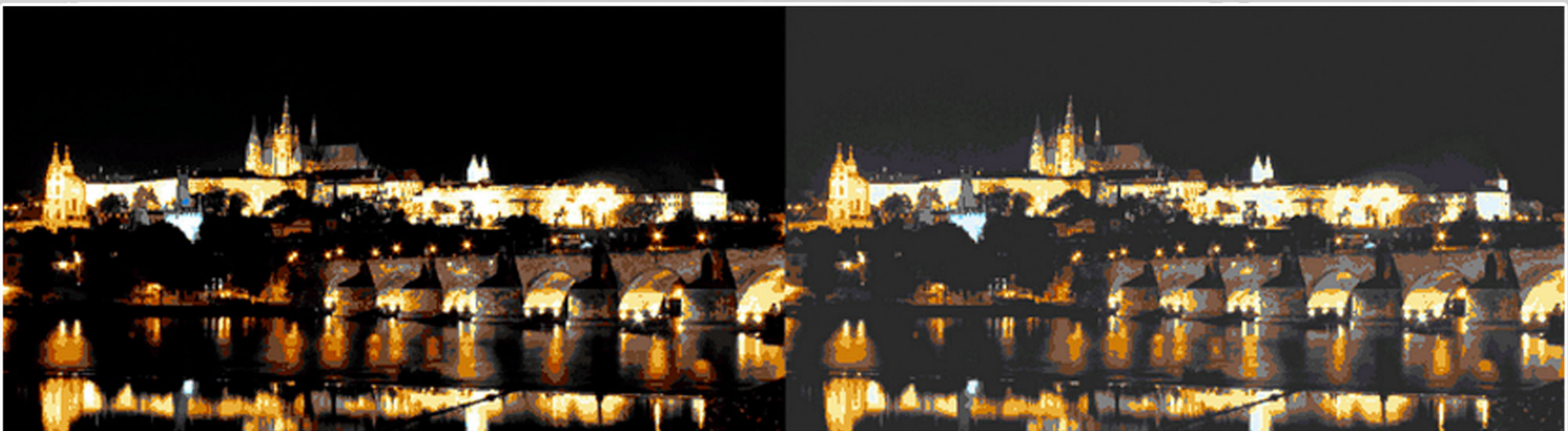
- SVGA or 800x600:
Good enough for low-cost consumer electronics; users generally upgrade to XGA when they can.
- XGA or 1024x768:
The most popular resolution, according to the recent survey; good enough for any use.
- WXGA or 1280x800:
XGA in widescreen format; very good if you are using a wide screen computer that are popular nowadays.
- SXGA or 1280x1024:
The resolution for high definition TV or detail-oriented professional presentation, such as architecture or engineering.
- UXGA or 1600x1200 / QXGA or 2048x1536:
The resolution you need for special operation such as traffic central control room.
- 4K/Ultra HD or 4096 x 2160:
Your awesome digital cinema experience.

Brightness

Light output determines the visibility of an image in a room. Measured in lumens, projectors range from about 2,000 to 15,000. If you need to view the image with room lights on, you will need a projector with a higher lumens count. Home theatre projectors rated between 1,000 to 2,000 lumens are suited for a dark room. Business or education users who will have lights on during presentations usually prefer projectors rated between 2,000 – 5,000 lumens. Still higher ANSI lumens are needed when in very large or very brightly-lit meeting room.

*Higher brightness = higher in price

Contrast Ratio



Measures the difference between brightest white and darkest black of an image. LCD projectors start around 500:1 whereas DLP projectors at 2,000:1. Higher contrast ratios produce more defined pictures: 5,000:1 is very good; 10,000:1 is very impressive; 20,000:1 is very expensive.

*Higher brightness = higher in price

ANSI

ANSI stands for “American National Standards Institute”, a private organization that issues guidelines for voluntary standards including such things as illumination power and contrast ratio, when it comes to projectors.

Lumen

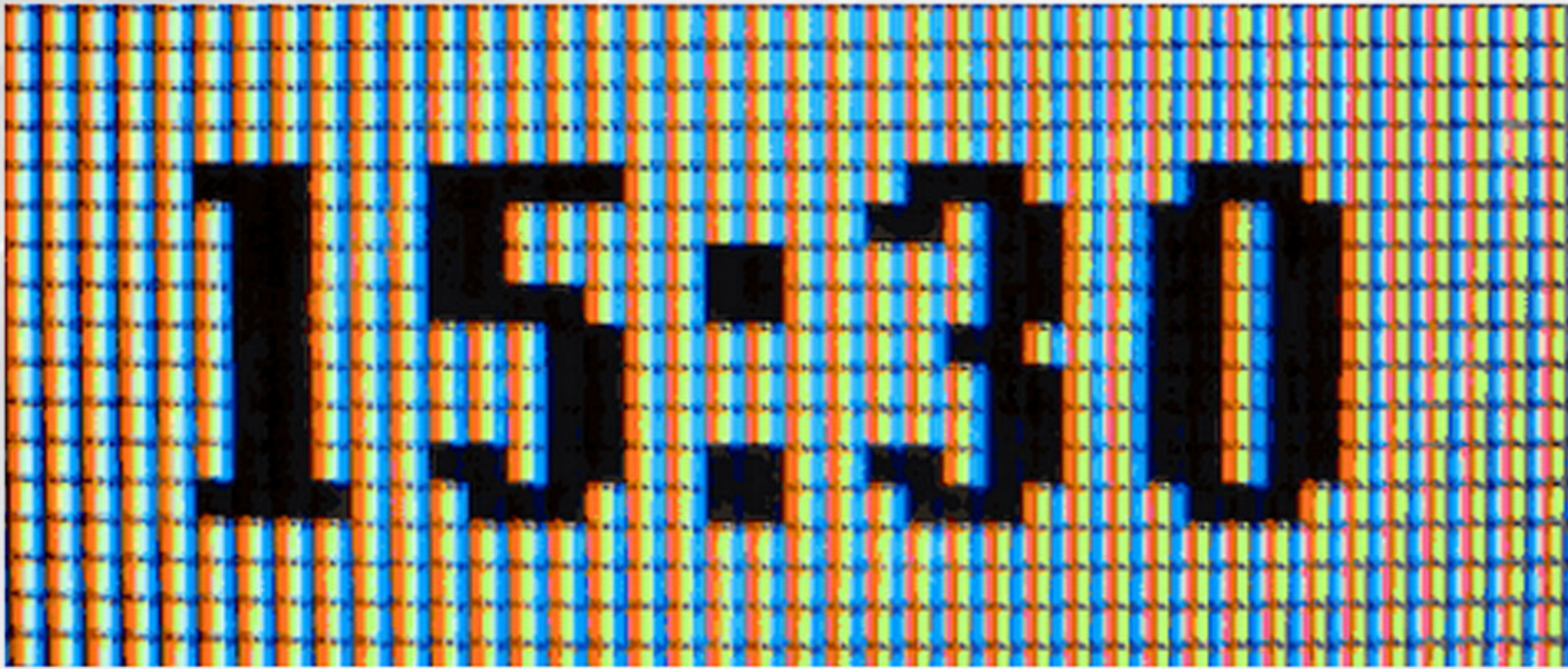
A lumen, the symbol for which is “lm”, is a measure of the perceived power of the light entering the eye from a projector.

Aspect ratio

Aspect ratio is the ratio between the width and height of an image; an aspect ratio of 4:3 produces an image similar to a square like your common CRT monitor. An aspect ratio of 16:9 is the common flat panel TV and even your wide screen laptop.

Pixel

A pixel, short of “picture element” is a single point (effectively a dot of light) in an image. The higher the number of pixels an image contains, the higher its quality.



Throw Ratio

The throw ratio, or “distance projection ratio” is the distance from the screen that a projector needs to be in order to produce an image of a certain width. For example, if a projector has a throw ratio of 2.0, it means that to produce an image 5 feet wide, the projector needs to be placed 10 feet away from the projector screen.

Weight

If the projector is intended to be mounted in a board room or carted from office to office, the weight of projector won't be an important concern. However, to make an onsite sales presentation, a light-weight projector makes more sense. The lighter the projector, the higher the price tag is.

PROJECTOR BUYING TIPS

There are several ways to use projectors, each with its own considerations:

Portable Mobile Presenter

Portable Multimedia Projector



For the salesperson, consultant, after-dinner speaker or others who rarely present in the same place twice, the prime projector consideration is portability. Other points to consider are the variety of connections (cable, computer, wireless), variable brightness and versatility enough to work in a large hall or small office.

Price Rating: High

Compact / Installation / Business conference / Presentation

Digital Business Projector

Managers and executives in the conference room or boardroom are more likely to be satisfied with the ceiling-mounted projectors. Size isn't an issue, when you want the device to be out of the way. Key points: a durable and easy maintenance projector; brightness of 2,000 to 5,000 ANSI lumens; high resolution (WXGA or SXGA).

Price Rating: Average



Auditorium / Broadcasting

Digital Multimedia Projector



For auditoriums, schools, churches, libraries and other community groups. Mounting or portability will depend on the situation. Key points: brightness of 3,000 – 15,000 ANSI lumens; dust proof design; good connectivity; locks or other accessories like those used for computer security.

Price Rating: High

Home theatre

The home theatre projector user wants the real movie-theatre quality; with excellent color, detail and sound. 720p/1080p resolution is where you should start at.

Price rating: Vary depending on resolutions



ADDITIONAL PROJECTOR COMPONENTS

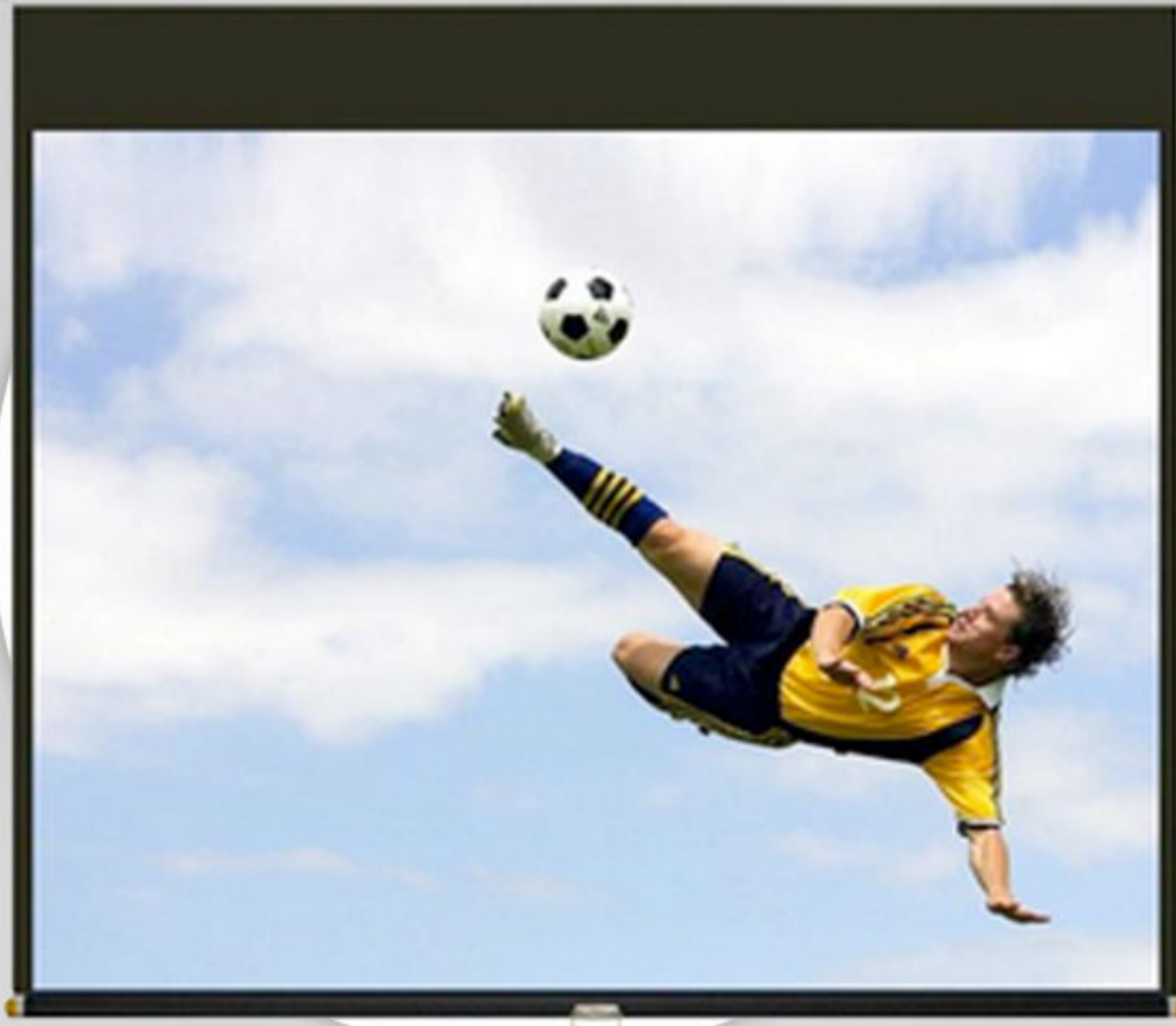
Lamp



Projector lamp lifespan is calculated on hours used. Nowadays, projector would give you a 3000-5000 hours lifespan. But generally you would need to change your lamp when it reaches 50% of lifespan because the brightness has already reduced by 50% by then.

PROJECTOR SCREEN

A good projector screen is necessary for the best viewing experience. Four basic options are available:



Manual Pull-down Screen

The least expensive projector screen that provides better picture-quality than just a painted wall white, widely used for budget user.

Mobile Screen

This projector screen is portable but still able to present a good visual quality.



Motorized / Electric screen

These projector screens bolt to the wall and retract when not in use. Motors for automatic raising/lowering.

Fixed-frame screen

This projector screen looks like a flat-panel television without any electronics, it is light enough to mount on almost any wall.



SOME ACCESSORIES TO CONSIDER:

Projector Carry Case



Additional Signal Connection Cable



Presentation Toolkit



INSTALLATION

Professional AV installation will guaranteed smoothness of your presentation and extend your AV equipment life span without hazardous. A professional AV installation helps to provide cable management and set up all AV equipment such as projector & sound system in order to provide the user a hazard free presentation.

2 TYPES OF INSTALLATION:

Fixed Mount

Most projector engaged with fixed ceiling mount installation. User can always focus on their presentation rather than spending difficult time setting up the projector every time before visual presentation. Especially in multi-user meeting room where everyone shares only one projector, usually when not everyone obtains professional projector setup knowledge. In addition, projector cable will be tidily organized and additional projector lock can be installed permanent for security purposes.

Motorized Mount

Provides same advantages and purposes as fixed mount installation but able to enhance meeting or conference room design image and prevent view obstruction on certain presentation circumstances.

Ceiling Mounting

The most common type of projector mounting installation which the projector is hold by a mounting kit.



Ceiling Motorized Mounting

Enable image and interior design enhancement.



After considering all factors above, users/buyers are advised to consult a professional installer for pre-renovation planning before start of any renovation for the meeting room or conference hall, in order to prevent any unnecessary hacking and drilling chaos renovation work or damages to the renovated room/hall.

An important meeting is to make sure that all systems that required are prepared and ready to use, and the devices or system will not affect or disappoint anyone during the presentation.