



# Smart IR II Technology

Leveraging intelligent, energy-efficient and long-life LED lighting

A Milesight Technology Moment



## Introduction

Lighting is one of the most important factors in image quality. As it gets darker, a surveillance camera's ability to capture evidentiary detail such as faces and licence plates rapidly decreases. In order to overcome this, **Milesight 360° Panoramic Fisheye Network Camera** is equipped with improved Smart IR II technology, which contributes to a high-performing and power-efficient IR solution with excellent quality and clarity video.

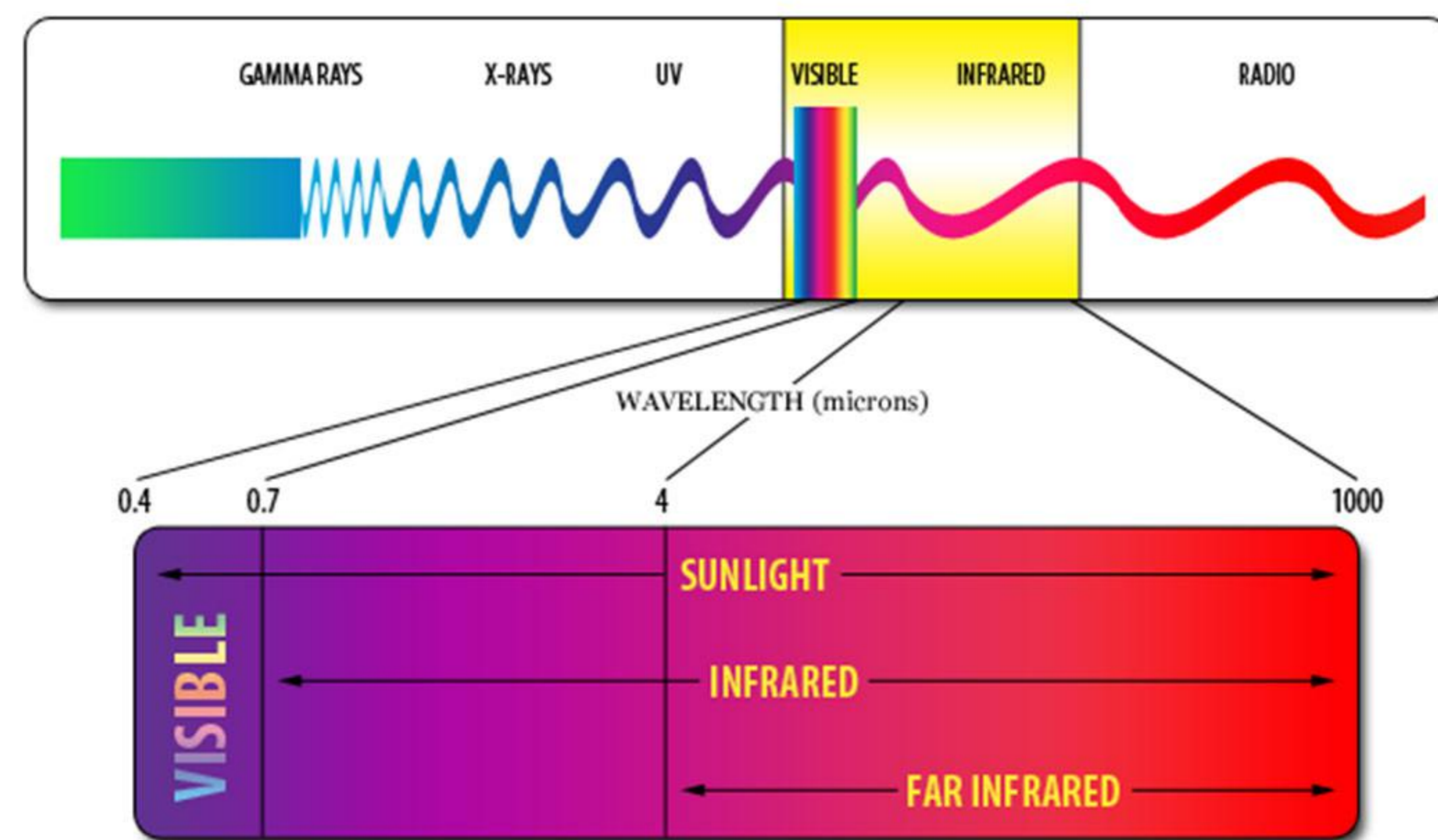


Figure 1

## Why do you need IR illumination?

Camera with IR means that the camera comes with IR Light Emitting Diodes(LEDs) that provide illumination when the camera is placed in very low light environments. IR light is at a higher wavelength(typically 800-980nm), making it invisible to the human eye(typically 390-750nm) while providing the camera the ability to “see”(Figure 1). The camera has an IR-cut filter that removes IR light during the day. IR light is filtered out so that it does not distort the colors of images as the human eye sees them. As light diminishes below a certain level, the camera can automatically remove the IR-cut filter allowing the camera to make use of near-IR light. Since IR light has a higher wavelength than the color spectrum, the resulting image will be in monochrome(black and white), but can capture crucial detail in complete darkness.

## What is Milesight Smart IR II technology?

Dot matrix IR LEDs with fixed angle are adopted to previous Milesight cameras to guarantee good image quality, long lifespan and energy efficiency. However, Milesight never stops its efforts in providing the excellent products and the IR technology has been greatly upgraded to Smart IR II to offer a better night viewing experience.



### ◆ Latest generation IR LEDs

When using the previous generation LEDs, it often encounters the drawbacks of poor heat dissipation, low energy efficiency and undurable quality. To address this problem, Milesight employs the latest generation IR LEDs in the Smart IR II technology. Different from previous two generation LEDs, the latest one controls the luminous decay within 18 months of the new infrared light source under 10% by a unique capsulation technology. The performance of the Smart IR II is greatly improved and the quality of LEDs is naturally better than the previous generation, to be specific:

**Longer Life-Span:** The latest generation IR LEDs' life-span is 5-10 times of previous generation LEDs;

**Greater Efficiency:** The energy efficiency of latest generation IR LEDs is around 25% while the ordinary LED is just 10%;

**Smaller Volume:** The latest generation IR LEDs is highly integrated, so in the same brightness, its volume is much smaller than previous generation LEDs;

**Higher Brightness:** The brightness of the latest generation IR LEDs equals to 200pcs that of normal LED;

**Durable Quality:** The latest generation IR LEDs are extremely durable and built with sturdy components that are highly rugged and can withstand even the roughest conditions.



Figure 2



Figure 3

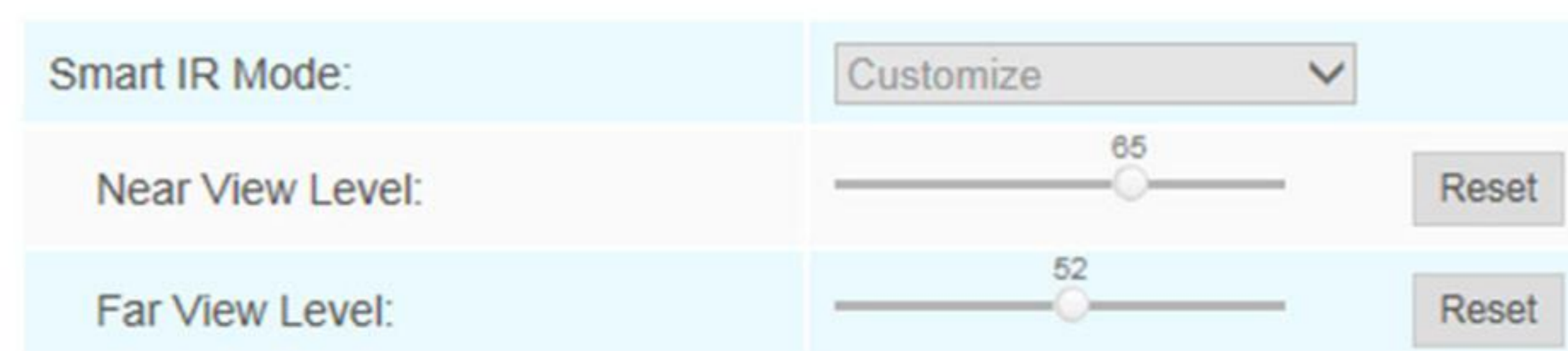


Figure 4

### ◆ Unique arrangement of the LEDs

To make the latest generation IR LEDs fully used, Milesight engineers have done so many tests and finally find the best arrangement of the four IR LEDs in Fisheye Network Camera. Three LEDs with scattering angle of 60° work as High Beams and three LEDs with scattering angle of 120° work as Low Beams for better image clarity and quality, allowing the IR distance up to 15m. The advanced IR technology allows even IR light distribution in different situation and the brightness of High Beams and Low Beams can be adjusted manually. Moreover, with the IR anti-reflection panel, the infrared light transmittance is highly increased.(Figure 3). Also, the Low Beam and High Beam's brightness can be adjusted manually. (Figure 4).



### ◆ Specially-designed IR anti-reflection panel

Moreover, as an important part of the Smart IR II technology, an IR anti-reflection panel which is made of special material is adopted to increase infrared light transmittance. It's a little black panel and used in front of the IR LEDs to makes sure that the camera takes full advantage of the Smart IR II Technology.



Figure 5

## Advantages of using Smart IR II Technology

The Milesight Smart IR II Technology works much better than its predecessors for a number of reasons, including:

- Providing IR distance up to 15m;
- Adjusting the brightness of the LEDs manually;
- Preserving details in an appropriate exposure level;
- Increasing infrared light transmittance.

## Conclusion

Milesight's intelligent and unique IR solution is based on high-performance and power-efficient Smart IR II Technology, providing the most effective illumination to capture the best details in any surveillance scenario and optimized image quality. Thanks to the technology, the cameras only need a few LEDs and the IR illumination is greatly concentrated where it is needed.



## Milesight Technology

Established in 2011, Milesight Technology is a high-tech company, specializing in design, developing and manufacture of best-in-class AIoT video surveillance solutions including Network Cameras, NVRs, Software and APP with superior image quality, exceptional flexibility and reliability for the global market. Milesight Technology markets its products through a worldwide network of distributors and resellers, offering excellent pre/after-sales and technical support services that exceed customers' expectation.

For more information about Milesight Technology, please visit our website [www.milesight.com](http://www.milesight.com).

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