Milesight MS-C2966-X12RPC Bullet Plus Network Camera Instructions

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Introduction

Following the trend in the industry of surveillance, All Milesight Camera Series have been powered by AI technology. To better utilize the advantages of AI algorithm, the frame of camera should be adjusted to the right position. If you need to set Smart VCA function or AI LPR function, please refer to the following installation requirements.

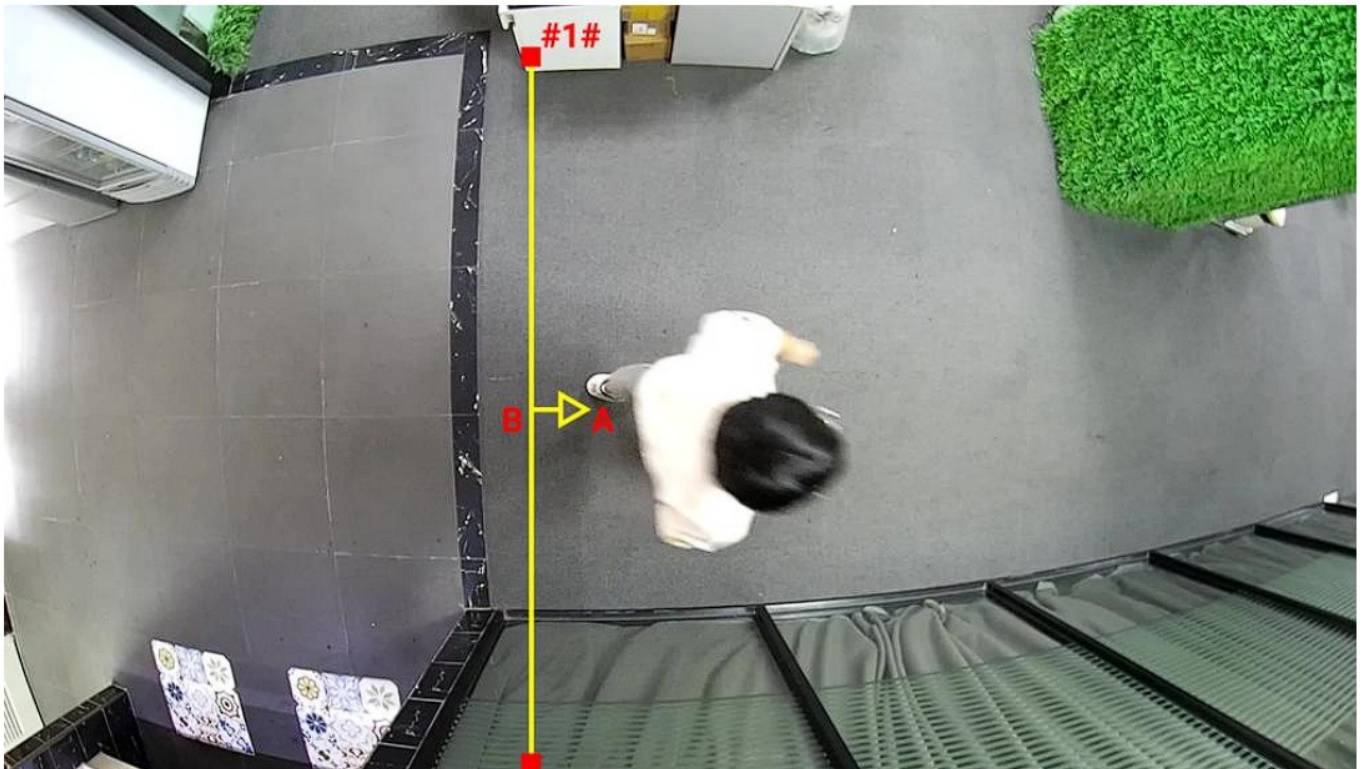## Recommended Installation

Basic Requirements for AI Analysis

- Ensure that the camera is fixed. Although EIS feature and AI algorithm will be compensated for image shake, but excessive shake will still have bad effect on the accuracy of detection.
- Try to avoid backlight scenes in the image such as the sky. Although enabling WDR will solve backlight problem, excessive light contrast will cause the processed image to not meet algorithm requirements.
- If the indoor light is insufficient, it is best to fill the scene with light. Although motion blur will alleviate the effects of insufficient light, poor lighting conditions will disrupt the judgment of the algorithm.
- Excessive occlusions may cause interruptions in detection, e.g. Auto Tracking.
- Excessive mirror reflections may cause algorithm to mistakenly identify the mirror image as a target.
- Our tests show that Milesight AI algorithm for infrared image detection is better than some other brands' products. However, overall, the accuracy of night mode image will be lower than it during the daytime.
- For more accurate and stable target detection, it is recommended that the size of the target is less than 50% of the whole scene. For License Plate Recognition, it is necessary to ensure that the license plate size is within a certain range, which will be explained in detail below.

Two Types of Mounting

Top Mounting:

Top-mounted cameras can better separate objects to avoid obstruction. While using Line Crossing or People Counting, top-mounted camera can better distinguish between shoulder-to-shoulder people.

Example of installation recommendations:

Model: MS-C2972-RFIPC

Lens: 2.7mm~13.5mm

FoV: 135°~39°

Camera Field of View	Height	Note
≥120°	2.5~4m	The smaller the field of view, the higher the mounting height required. For 1920×1080 video stream, a target size of 240×240 pixels is best.
120	4m	

Wall Mounting:

Wall-mounted cameras can better identify objects such as people and vehicles. It also allows better identification of the target's attributes, such as face, color, type and so on.

Example of installation recommendations:

**Model:** MS-C2966-X12RPC   **Lens:** 5.3mm~64mm   **FoV:** 69°~5°

Vertical	Tilt	Height	Note
15~30°	5°	2.5m	Height and distance from the target to the camera are still not critical factors. The proportion of the target occupying the frame is the key. The smaller the field of view, the farther the target needs to be from the camera. For 1920×1080 video stream, the best target size is from140×300 pixels to 320×700. (vertical

**Recommended Scenes for Certain Functions**

Regional VCA and Regional People Counting:

For VCA events that require configuration of detection regions, it should be noted that, different from some other brand products, the region is not set according to the horizontal area in the space but is perpendicular to the plane of the center line of the camera's field of view. The following two pictures show the wrong detection region configuration and the schematic of Milesight detection region.
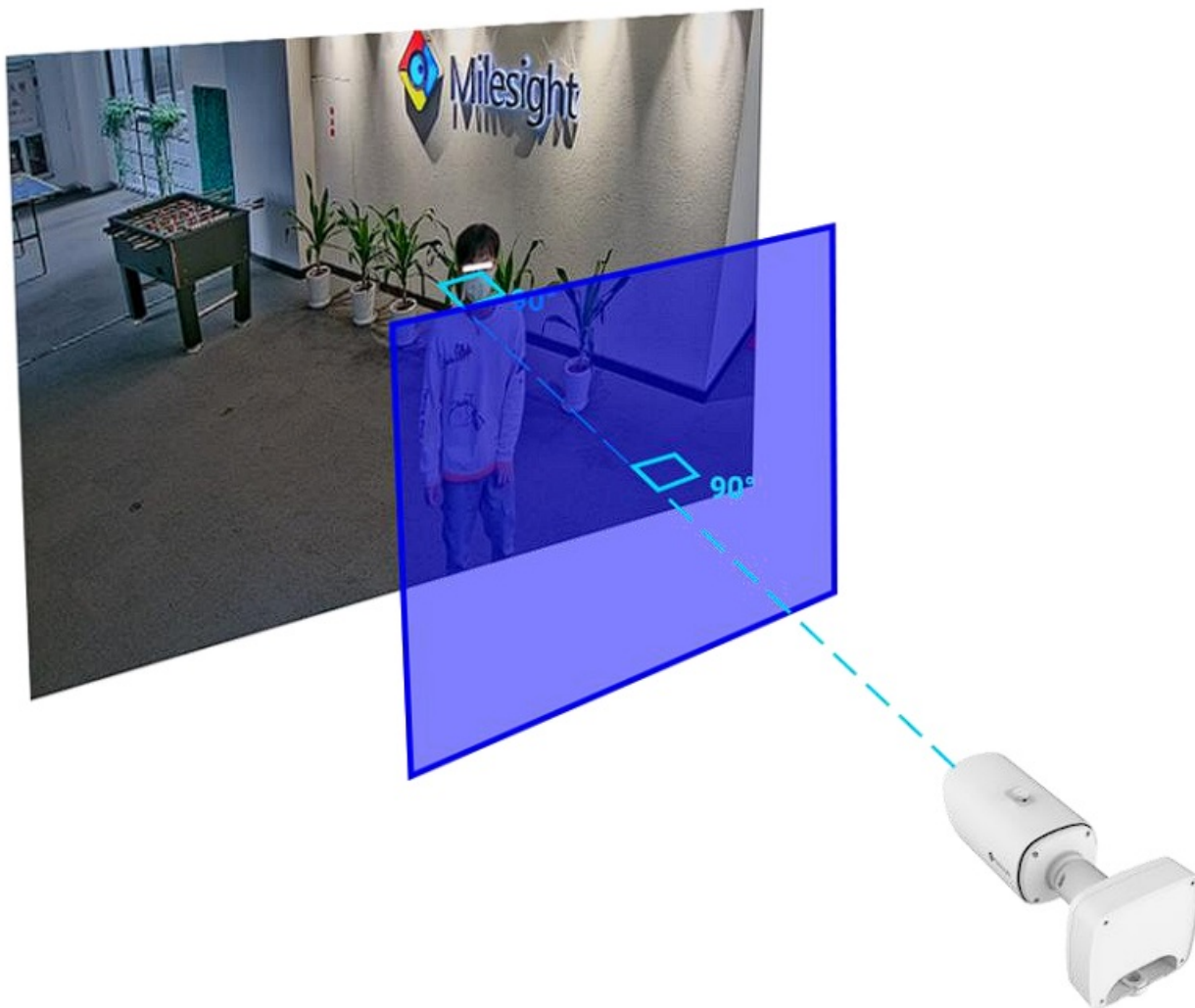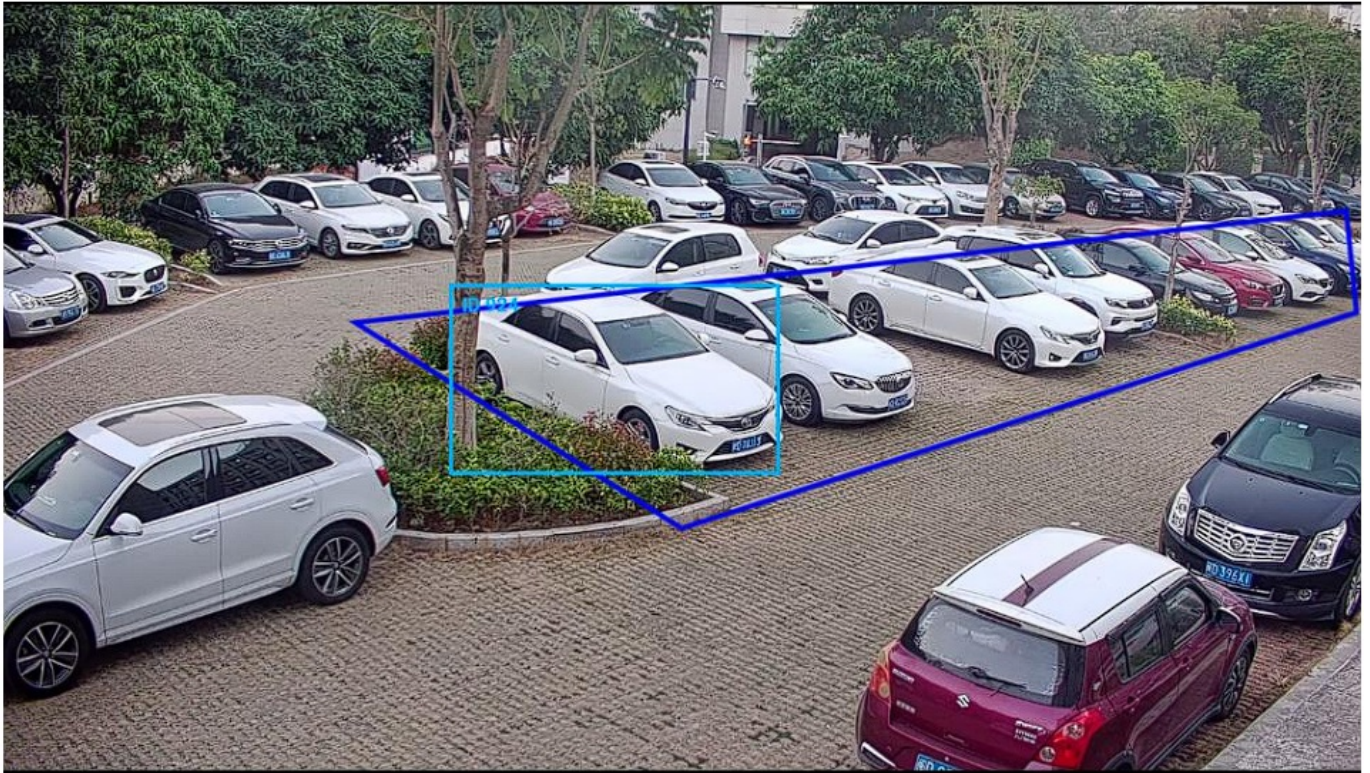
Correct drawing of regions needs to cover all areas where the detection box of targets may appear. As shown below, this region can completely cover all the vehicles in the middle.
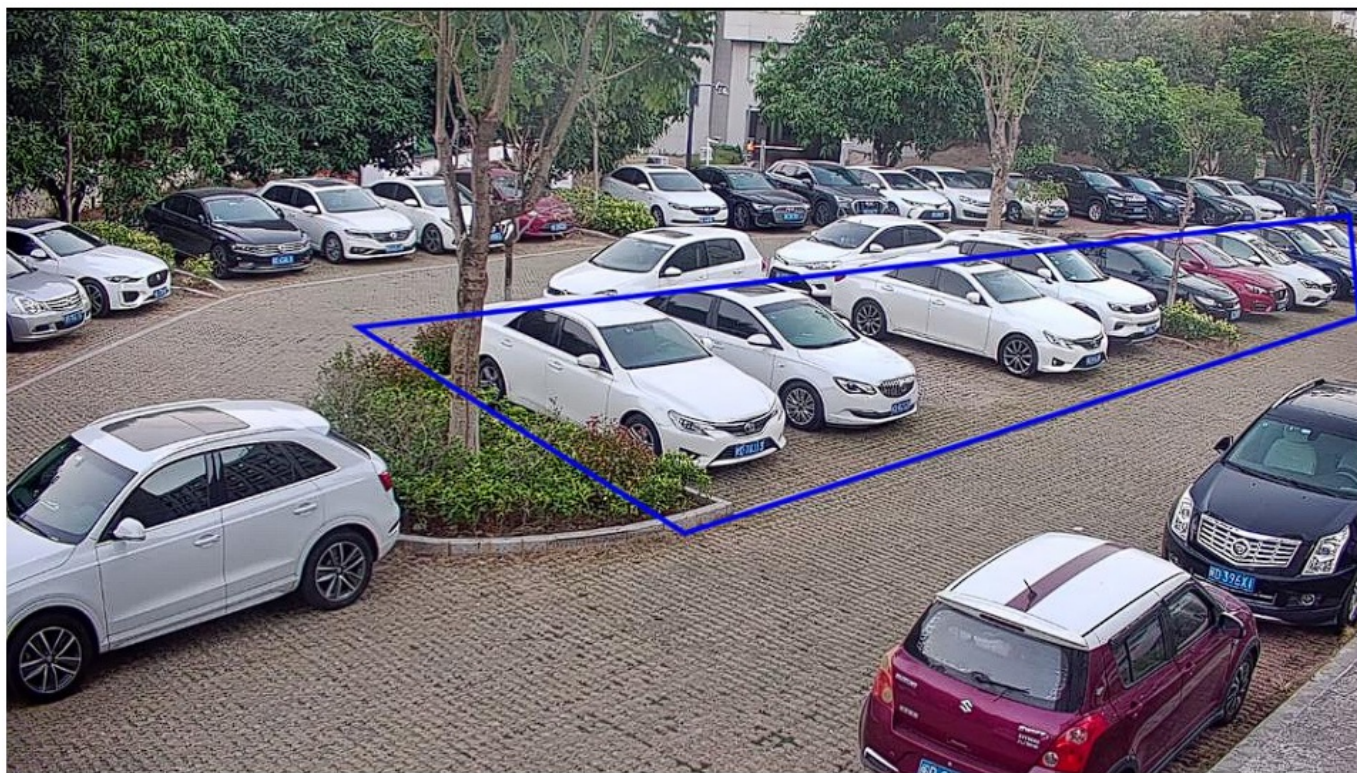
As the following picture shows, when the overlap between detection box and detection region is approximately 80% of the box, the target will be noted as being in the region.

As the following picture shows, when only a small part of the detection box enters the region, the target will not be noted as being in the region.
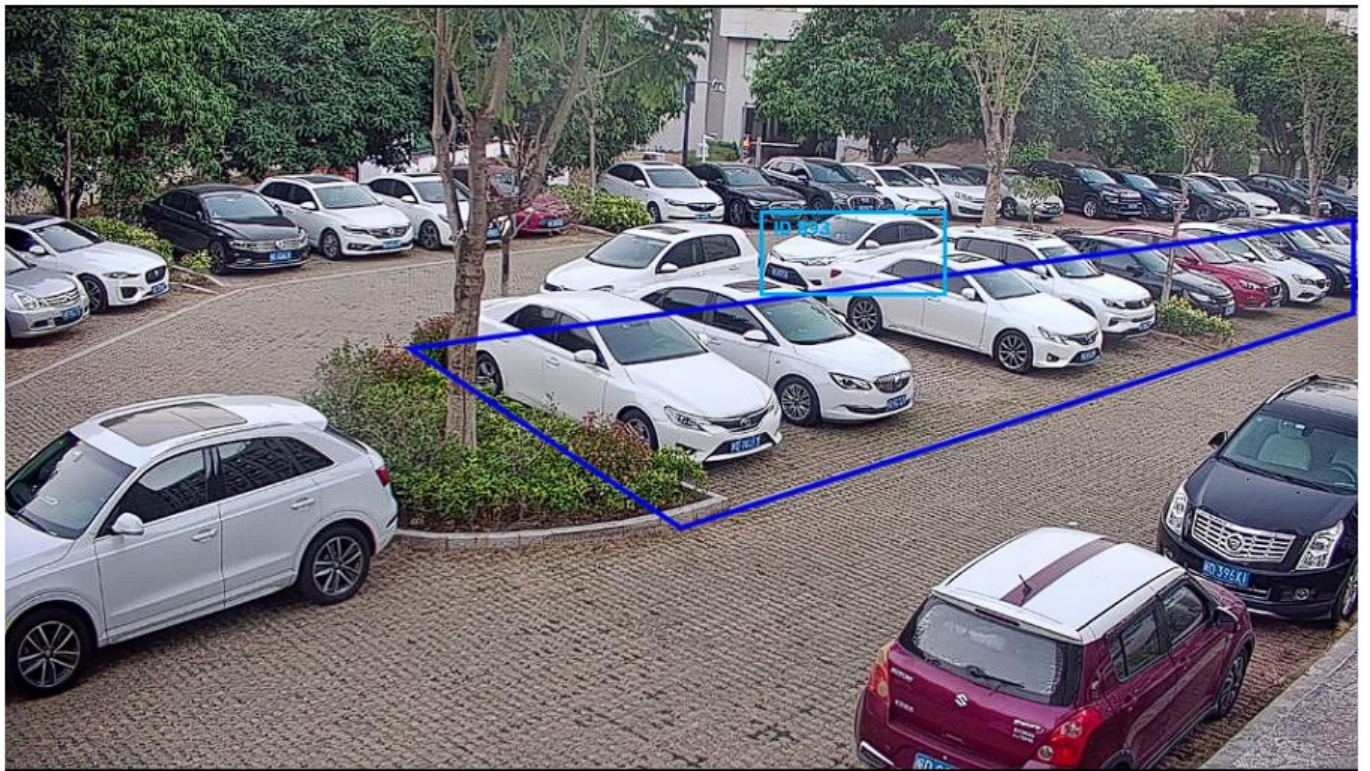

While using Object Left/Removed, there won't be detection boxes. Please try to cover all the objects to be detected. It is recommended that the region is just enough to cover the objects.

Line Crossing and People Counting:

For VCA events that require configuration of detection lines, you need to ensure that the detection box of target can pass through the detection line completely.
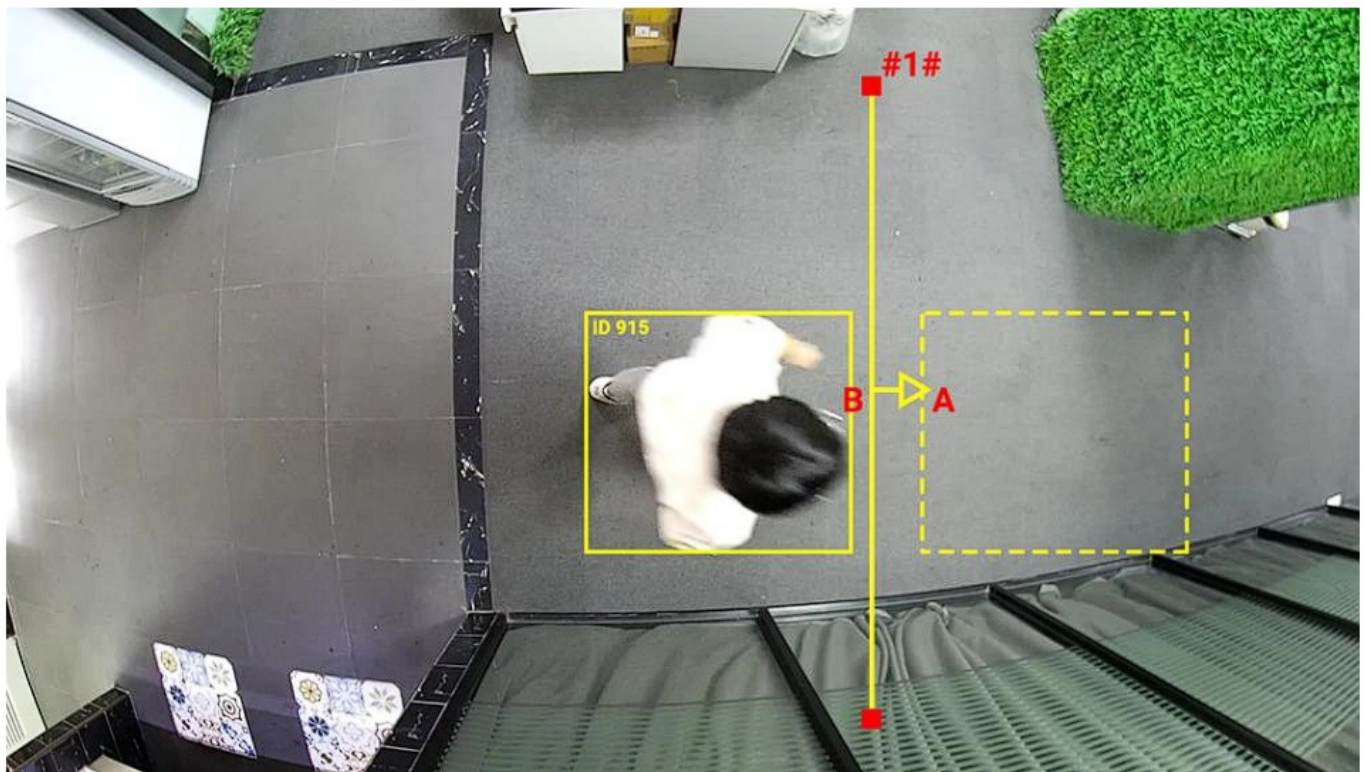
The following are two common configurations that are detrimental to Line Crossing and People Counting. In picture 1, the angle between the detection line and the direction of target is too small, resulting in easy missed detection. In picture 2, the detection line does not completely cut off the path that target may pass through, causing missed detection.
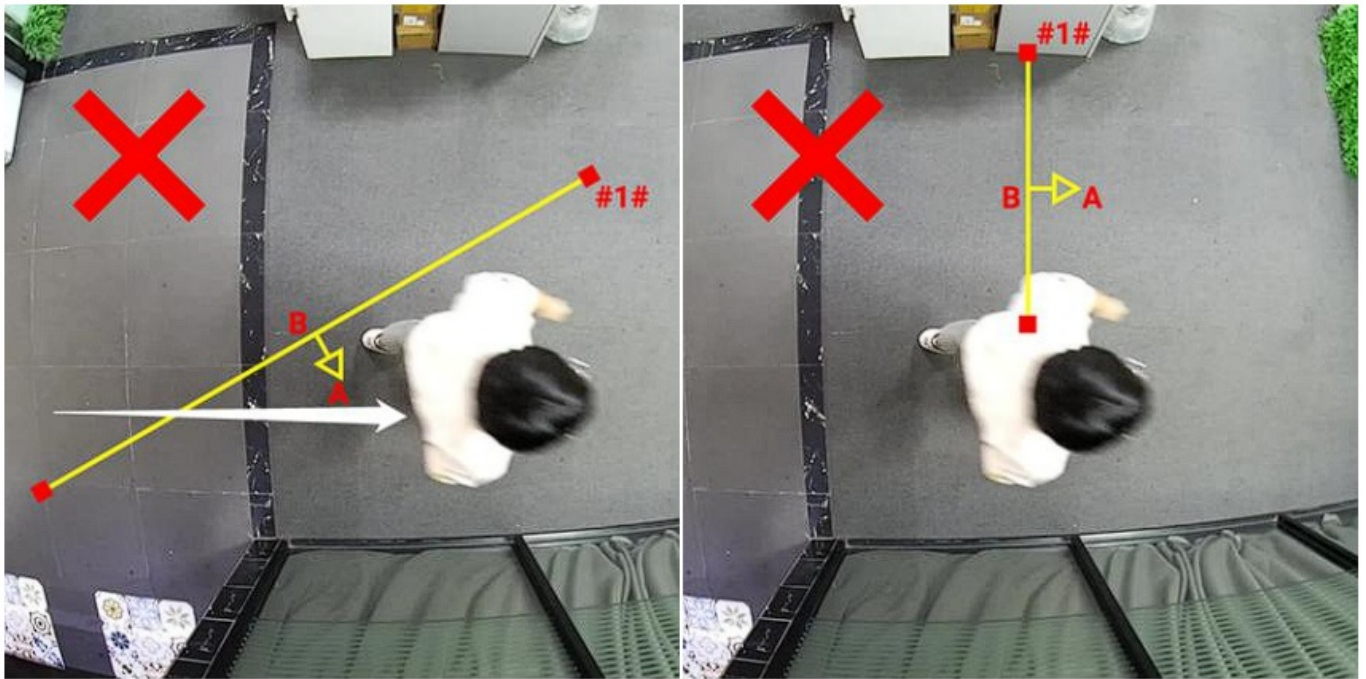
A redundant identification area needs to be left after the target appears in view. This is to ensure that the camera already has stable recognition and tracking of this target when it passes the detection line, which will make the count and detection more accurate.
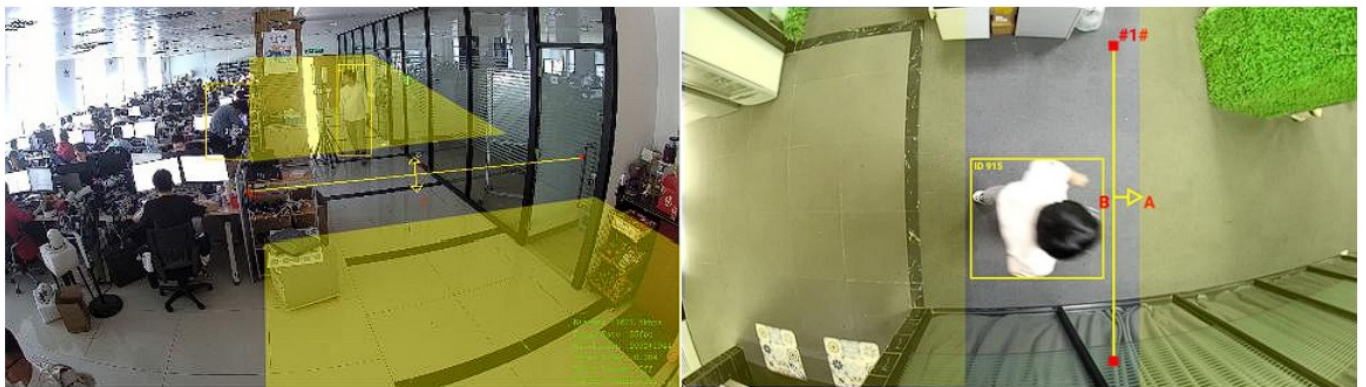
Face Detection:

For Face Detection and Attribute Identification, the camera can be installed according to the normal indoor installation recommendations. The following additional points need to be noted.

1. Ensure sufficient light on the face.
2. The recognition accuracy of the front face will be better than that of the side face.
3. Ensure that the face pixels are larger than 80*80 pixels.

License Plate Recognition:

For LPR function, the target is license plate. Whether it is a road installation or a gate installation, you need to make sure that the size of license plate in image is not too big or too small.

Besides, there are some special installation requirements of LPR and Radar Detection.

Vertical	Horizontal	Tilt	Height(For Radar)	Note
< 30˚	-30˚~30˚	-5˚~5˚	6m (Best) 2~7m	Height and distance from the target to the camera are not critical factors. Make sure plate size is from 90 pixels to 180. (Width)

Vertical angle is less than 30°

Horizontal angle is no more than 30°
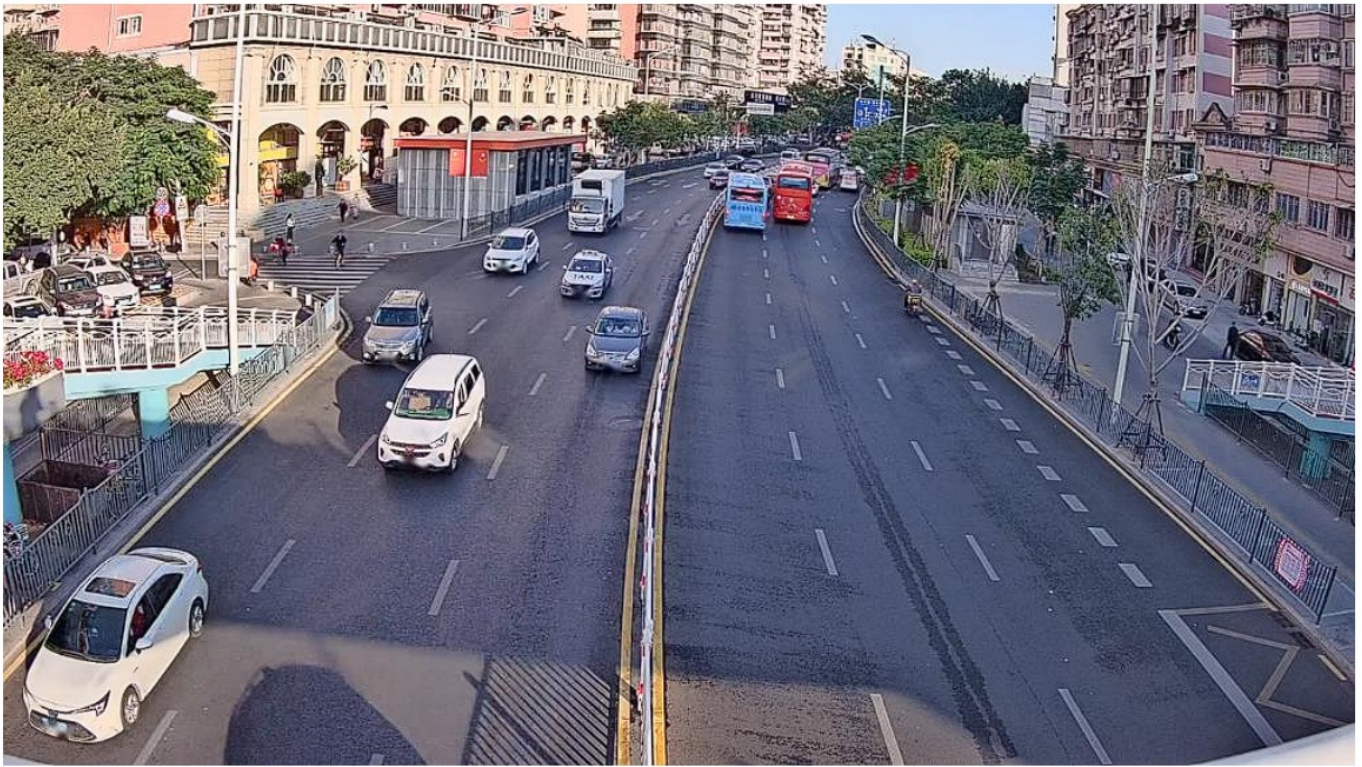
Tilt angle is less than 5°

For night recognition, in the case of no fill light, the camera should better be installed with 0 tilt angle and 0 horizontal angel. In this way, the infrared light will be more irradiated to the license plate and be reflect more by license plate to form a clear plate image.

Vehicle Counting:

Vehicle Counting is similar to People Counting. It should be particularly noted that we should avoid overly large targets and ensure that the camera can capture the driving process of a vehicle for a long time. The following scenario is the most suitable case for Vehicle Counting. When the vehicle passes the detection line, the best pixel size is about 180*180 pixels.

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Documents / Resources

	Milesight MS-C2966-X12RPC Bullet Plus Network Camera [pdf] Instructions MS-C2966-X12RPC, Bullet Plus Network Camera, Plus Network Camera, Network Camera, MS-C2966-X12RPC, Camera

Manuals+,