# ANPR Application
## Camera Mounting Guide

Improve LP readings

# Intro

This document provides tips and tricks on **camera mounting** to achieve best LP readings even under severe environmental conditions.

The guide covers physical parameters such as

- mounting point height
- azimuth deviation
- view angles
- best practices and don’ts

Latest edition always available as PDF and Power Point

Last updated **2018-05-31**

You may also find Installation Checklist useful.

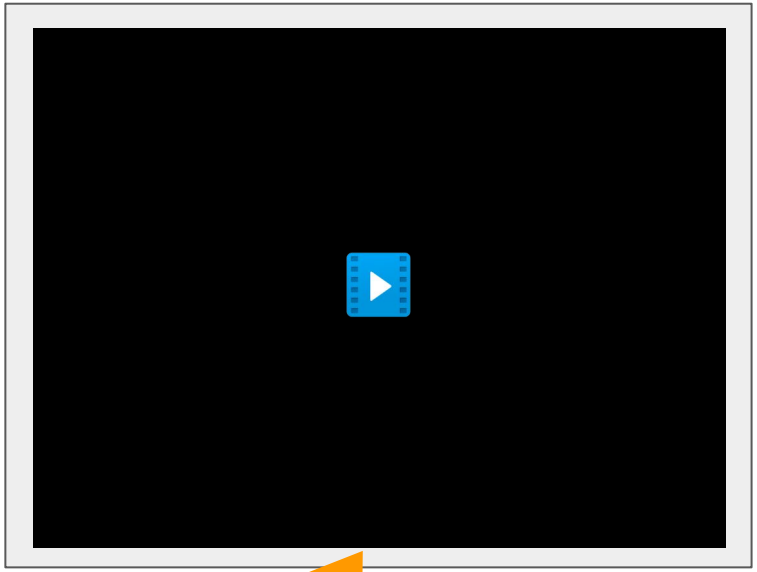
Other useful resources

# Camera Mounting

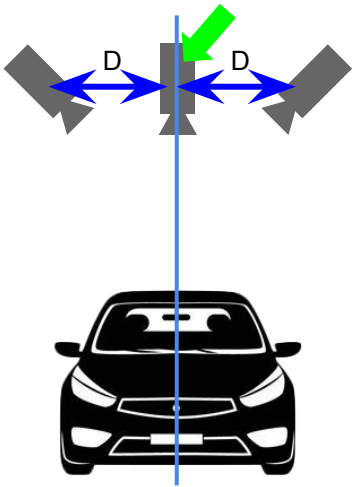
## Perfect Installation Scenario - Camera placement

Reference video clip

What would you see when camera mount is perfect



Video available only in Power Point edition

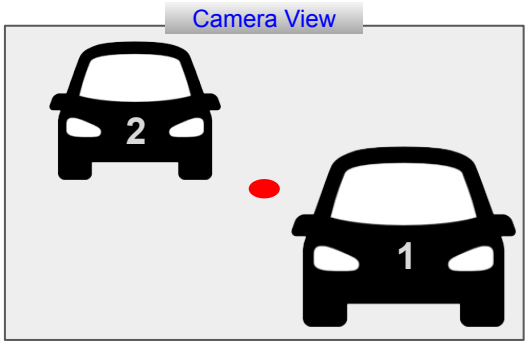


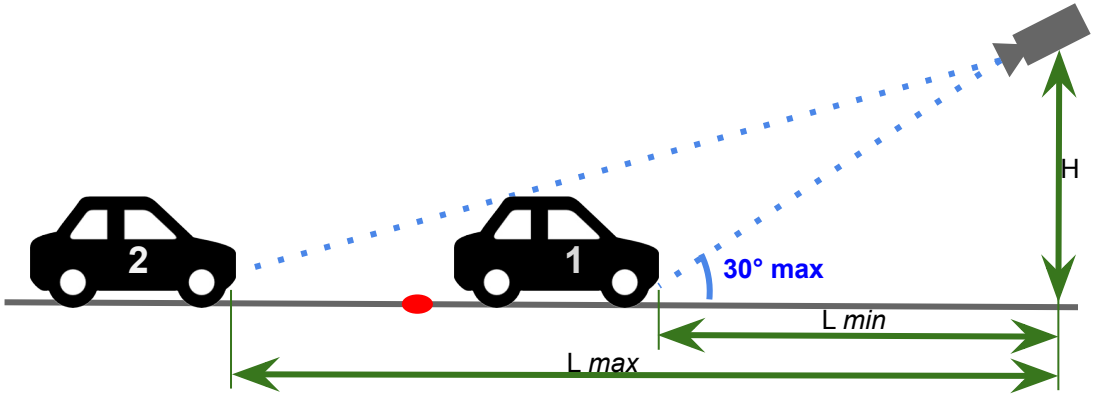

Optimal allowed deviation from mean axis

| | D max |
|---|---|
| meters | 1.5 |
| feet | 5 |

# Camera Mounting

## Perfect Installation Scenario - Recommended distances



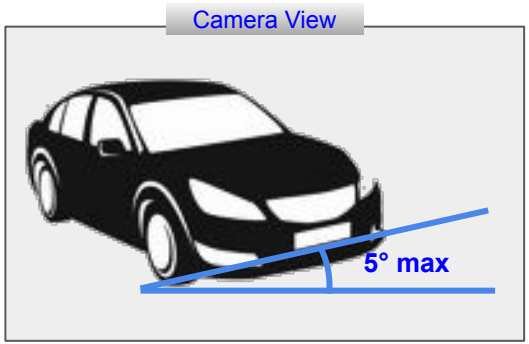



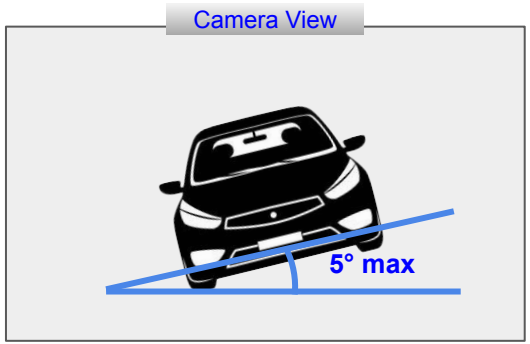

| H | L *min* | H | L *min* |
|---|---|---|---|
| meters | | feet | |
| **3.0** | **5.1** | **10** | **17.3** |
| **3.5** | **6.0** | 12 | 20.7 |
| 4.0 | 6.9 | 14 | 24.2 |
| 4.5 | 7.7 | 16 | 27.7 |
| 5.0 | 8.6 | 18 | 31.1 |
| 5.5 | 9.5 | 20 | 34.6 |
| 6.0 | 10.3 | 22 | 38.1 |

**L *max*** depends on lens zoom, however **should not exceed 20m / 66ft** considering effective **IR range**
Please consider using **external IR** for ranges above 20m / 66ft

# Camera Mounting

## Perfect Installation Scenario - Camera tilt



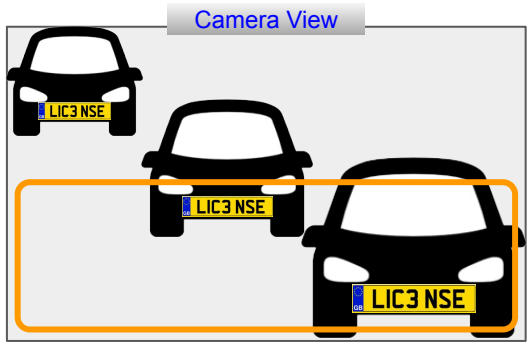



# Camera Mounting

## Perfect Installation Scenario - Plate number dimensions

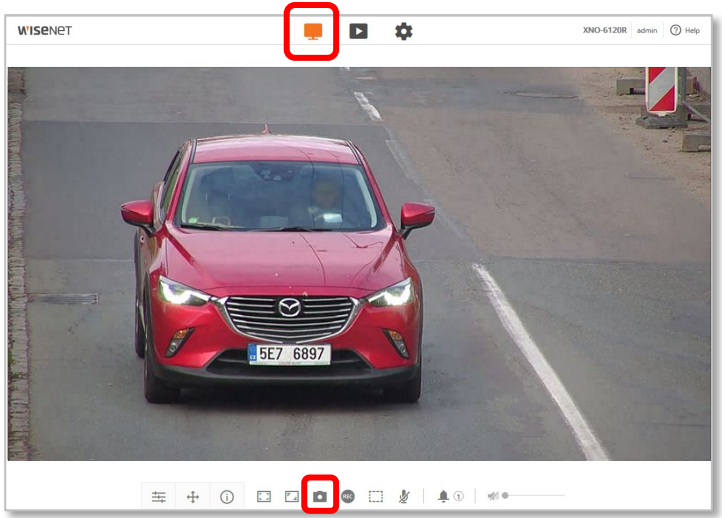
If single row licence plate takes from **1/10 to 1/5** of FullHD (1920x1080) frame width then it fits ANPR requirements.

Normally, setting recognition zone (see yellow frame below) in lower half of camera view is sufficient and favours app performance.




Best results are achieved when single row number plate width is between **150** (better) and **400** pixels (acceptable). Greater width may affect performance.

To measure pixel width of plate numbers:
1) spread or move plate numbers (cars) across the scene (see illustration on the left below) and take snapshots using iPolis web viewer capturing feature (**Live** -> **Capture**);

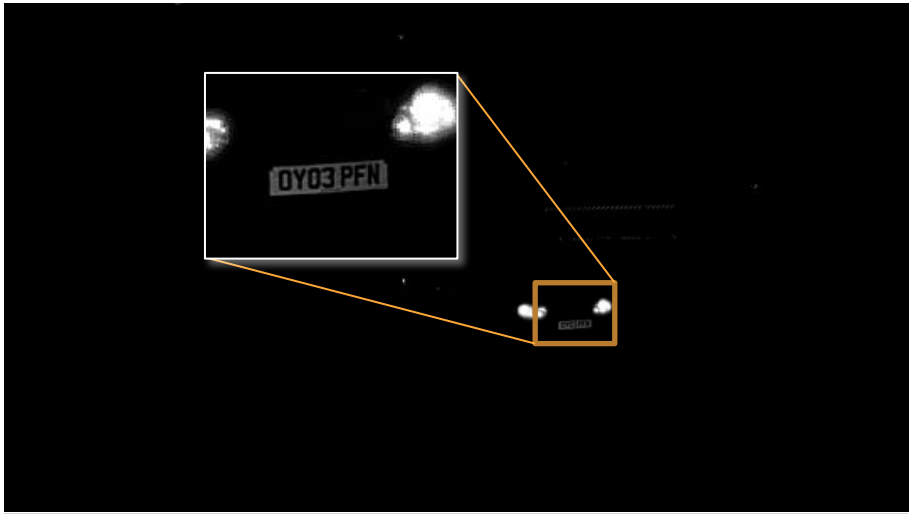



2) use any free image processing or viewing software to measure plate number width and tilt angles.
NB! WN3 iPolis is supported by specific browsers only.
Please, refer to notes on that in Camera Settings guide: PDF or Power Point.

# Camera Mounting

## Proper installation – possible IR restrictions


The license plate is quite close to the frame boundary.
You may notice a vignette effect.



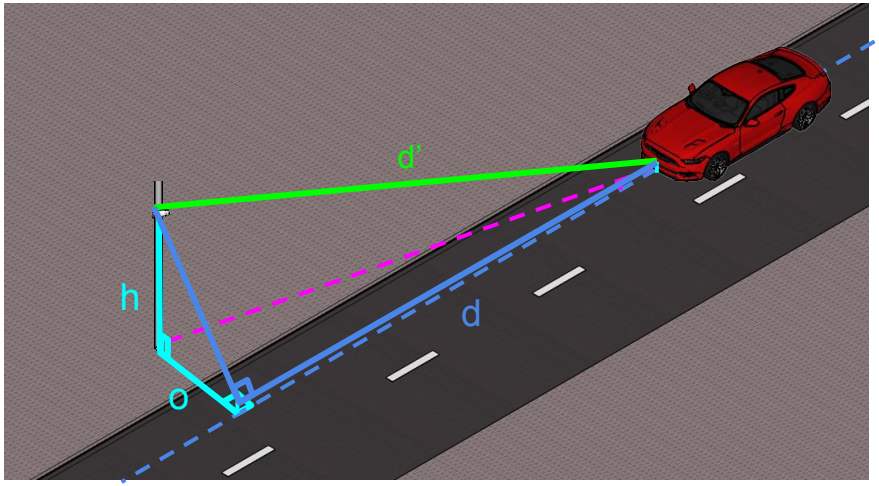

The license plate is closer to the centre of the frame.
The plate is lit much better.

Pay special attention to IR vignette effect (see illustration on the left) when setting up recognition zone. The closer to the centre the more even lighting is.
Also in this particular case real pixel width of the number plate is ~70px, which is critically small.
The Automatic Gain Control effect will be illustrated in camera exposure settings section.

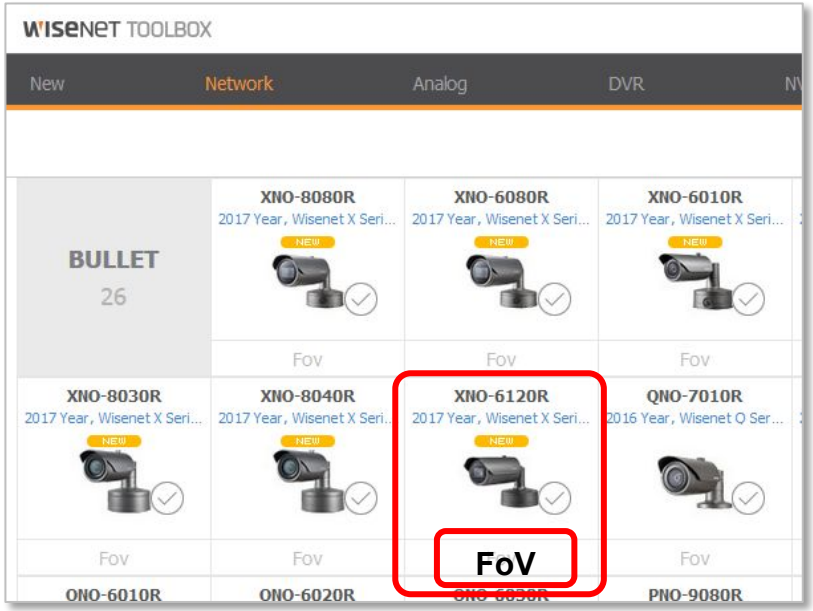
# Camera Mounting

## Other installation scenarios - Advanced guidelines

For installation under conditions that do not fit constraints above, please refer to the comprehensive manual:
https://goo.gl/1KrM9W – download
https://goo.gl/p1uVa1 – view



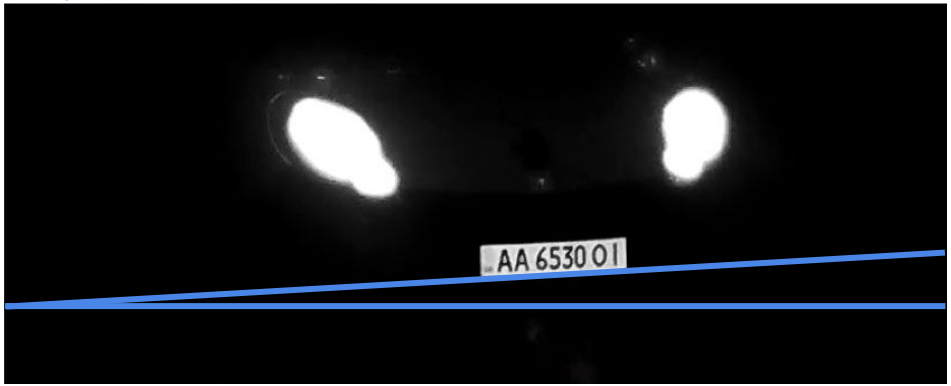

Consider referring to WiseNet toolbox to check the field of view for a particular camera
https://www.hanwha-security.com/wisenettoolbox/index.html#!/en/home



# Camera Mounting
## Proper installation - Best practices

Daytime


Night time




NP/LP:
- good proportion to the frame width
- well lit
- sufficient contrast
- acceptable tilt angle

NP/LP:
- good proportion to the frame width
- perfect IR power
- sufficient contrast
- critical yet acceptable tilt angle

# Camera Mounting

## Installation don’ts - Worst practices

NP/LP:

- too small (less than 130px wide)
- tilt angle exceeds 5°

Camera aspect view:

- is too steep, way above 30°

# Installation Summary

## Scene requirements :


License plate is more than 130 px in width


License plate is readable


Vertical angle is less than 30°


Horizontal angle is less than 30°


Tilt angle is less than 5°

# Useful resources

| | |
|---|---|
| Next step | **Camera Settings for the best performance** as PDF or PowerPoint pptx |
| Product page | https://www.hanwha-security.eu/business-security-products/xno-6120rfnp/ |
| Product wiki | ff-group.org/hanwha |
| Installation Checklist | PDF: https://goo.gl/v29ZTW |
| Tech support contacts | https://www.hanwha-security.eu/support/support-faqs/ |
| Online tools | https://www.hanwha-security.eu/online-tools/ |
| More resources | https://www.hanwha-security.eu/support/ |