Hints & Tips:
Lighting for ANPR / LPR

Common Global Challenges of Capuring the Plate

Speed – causes image blur

Headlights – and other ambient lighting create glare and can blind traditional cameras

Low Light – without dedicated lighting, normal cameras can't provide reliable pictures in low light

Sunlight – causes glare and reflections

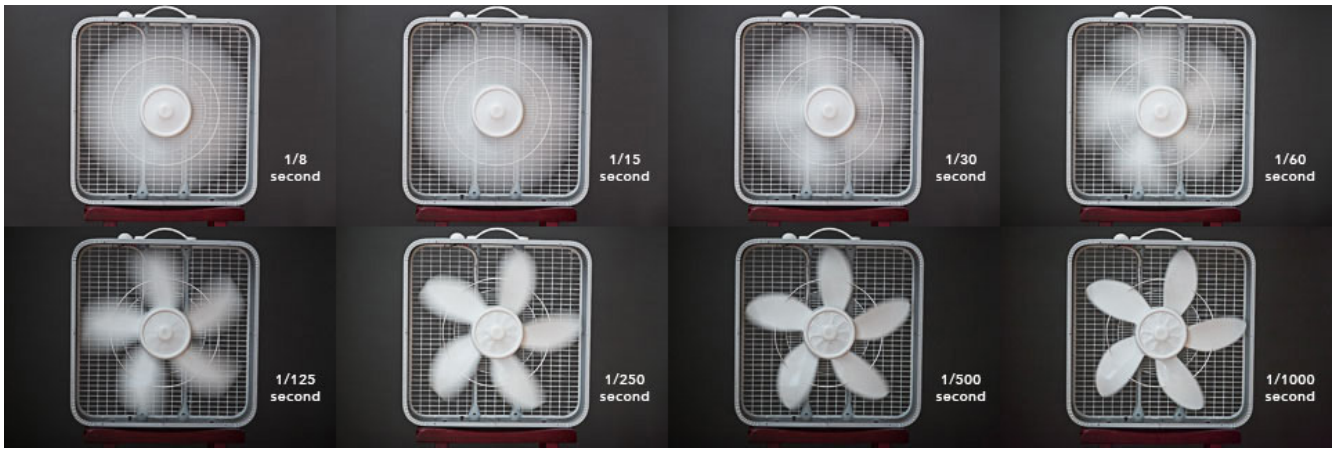
Weather – poor, variable and changing weather conditions will significantly affect the picture from a traditional camera

Choosing an Illuminator

When capturing license plates, the vehicle travels faster than a person would. This requires a camera with a faster shutter speed which, in turn, requires more light from a larger unit than what would be typically recommended. For example, if the vehicles are travelling at highway speeds, a unit two to three times larger should be used than what would typically be recommended.

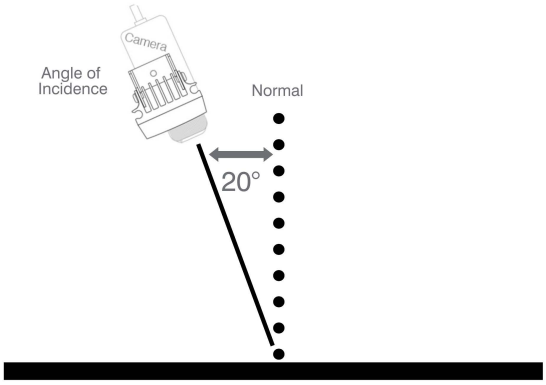
Camera Settings

Camera settings are just as important as lighting when capturing license plates. Fast shutter speeds need to be used to get the best images. Standard settings are 1/250 for parking lot traffic and 1/1000 for highway traffic. The exposure time needs to be very short or the shutter speed should be locked. The AGC setting in the camera will need to be turned off to reduce and lower noise to a reasonable level.

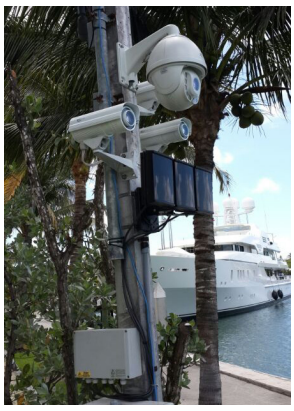


Setting Up the Illuminator With the Camera

The illuminator should be co-located with the camera. Mounting height should also be as direct as possible to the plate up to a height of no more than 8 feet. IR light works on the reflected light principle: the light is emitted and reflects off of the target and will be reflected in the same direction. So the closer to the camera the IR illuminator is, the more reflected light off of the target camera will capture. Angle of incidence should not be more than 20˚ - as direct as possible will yield best results.



The ideal set up when capturing license plates is to have two cameras. One to capture the surrounding environment and one to capture the plate. Some installations may require an optional bandpass filter.



The capture zone should not be greater than one lane width (approximately 10 feet). This width keeps plate image height relative to the screen height at a reasonable size for readability (varies per plate).

For more detailed information on License Plate Capture, please download our Raytec White Paper: Lighting for Intelligent Transport Systems.