STATEMENT OF TECHNOLOGY

Automated Speed Enforcement Cameras in Polk County, IA

Under contract with the County, Gatso USA, Inc has installed Automated Speed Enforcement Cameras in Polk County. Two systems were installed in Jeep Patriot vehicles allowing mobile operation. Following is a statement of technology to this type of enforcement system.

Mobile Vehicle Camera – Speed Violation

The County operates 2 mobile automated speed enforcement camera systems. These systems are installed in vehicles which are parked along roadways anywhere in the County. This camera system captures vehicles speeding. A radar, camera, flash, and control unit are installed in each vehicle. Three plus lanes of traffic can be monitored. A narrow radar beam is emitted across the lanes of traffic being monitored. The radar has a 5 degree horizontal beamwidth and measures in a 20 degrees angle from the road side. The system has a radar antenna to measure the speed of traffic. It emits radar signals and receives the reflected signals for vehicle detection and speed measurement. The radar can simultaneously measure its own speed and the speed of passing vehicles. The radar can measure receding traffic, approaching traffic or both directions simultaneously.

A GPS antenna is integrated with the system to determine the location where a speed offence takes place. The system also uses GPS to receive an accurate time stamp and the system is continuously updated with the exact time. The GPS calculates location, speed, movement and time, 5 times per second.

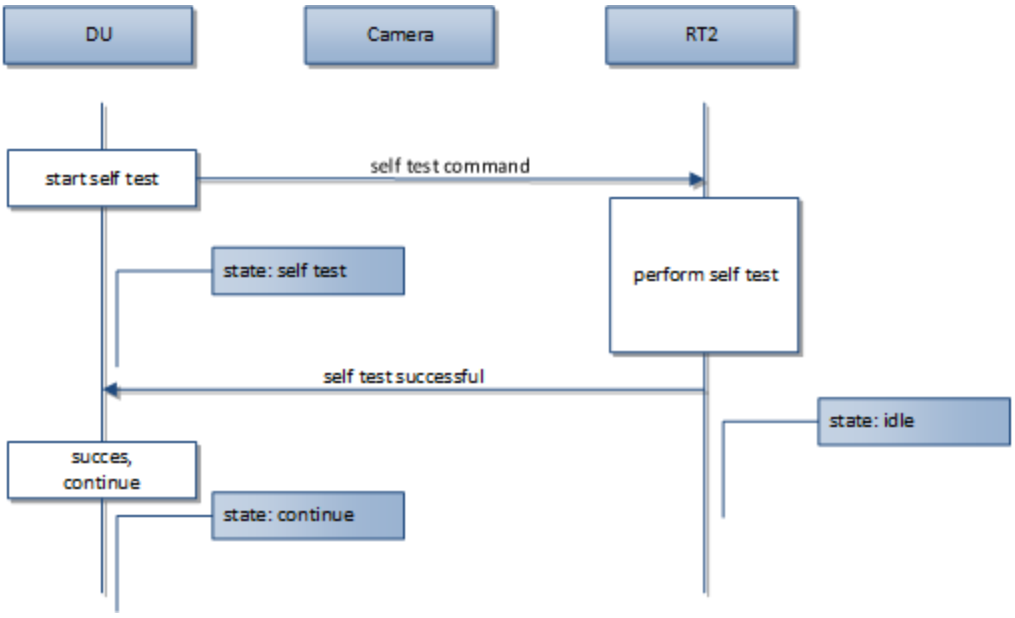
For a speed violation to occur, a vehicle must exceed the speed limit configured inside the camera system. This speed limit is determined by the Sheriff's Dept. and is always several miles above the speed limit posted on signs along the roadway. A color digital still image is taken. The image displays the violating vehicle a set distance from the camera. Automatically created and attached to the still image at the time of violation is a databar. The databar contains all relevant data of the event including date, time, speed, and location.

The combined image and databar are encrypted using Advanced Encryption Standard and stored in the system for a brief time before it is offloaded via a Virtual Private Network (VPN) for processing.

Processing consists of a human viewing the image to determine if a speed violation occurred based on the Business Rules approved by the County. If an event meets the criteria for a violation, the license plate data is electronically sent to the National Law Enforcement Telecommunications Service (Nlets) for name, address, and vehicle information. Upon receipt of the registered owner information another review is made comparing the information to the vehicle in the images. Upon confirmation of a match, the violation event is electronically sent to the Sheriff's Dept. for a Deputy to review. The Deputy will review the event and make the final determination if a speed violation occurred. If yes, the violation is printed and mailed. If no, the event is held for a short period of time and then deleted.

System self-test

The system integrity is tested by an internal self-test. This self-test initiates when the radar system is powered up or when a manual self-test is triggered. Unlike older style radar system which use a tuning fork to initiate a self-test during a dedicated procedure, the current RT2 radar system does not trigger a self-test by a tuning fork. Instead, the system control unit (DU) initiates the self-test of the system and triggers the built in signal generator in the RT2 antenna. This signal generator generates a signal with a precise frequency and phase representing a simulated target (vehicle). The generated signal is processed as a normal measurement therefore the target speed, range and signal strength are determined. When the signal is processed the detected values are verified so as to comply with the specifications of the generated signal. When compliant, the RT2 antenna acknowledges a successful self-test to the system control unit (DU), records the outcome in the log file and sets the system to enforcement state.



RT2 verification

Annually the RT2 radar antenna microwave (high frequency) parameters and speed measurement capability are verified by GATSO for compliance to the factory specification according the internal procedures which are controlled by the GATSO ISO 9001 handbook.