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Eagle 3 Operation through Ballistic Glass

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Operating through Glass - Overview

Operating RADAR or LASER through glass such as the windshield, back, and side windows, will cause a portion of the transmitted signal to be lost due to refraction through each layer of glass. Likewise the return signal is refracted before it arrives at the RADAR antenna or LASER receiver. This signal loss can delay the time it takes to acquire and measure a motorist's speed.

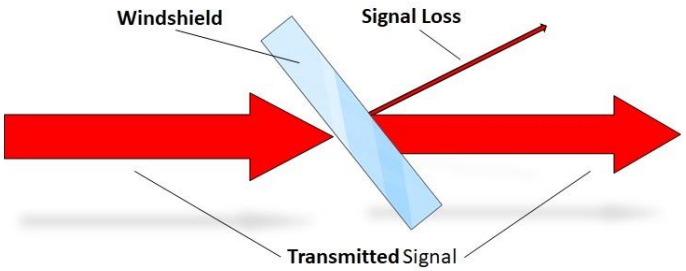

Figure 1 - Transmitted Signal Loss due to Refraction in Glass

A ballistic glass windshield is made by layering acrylic, polycarbonate, or other plastics to automotive glass to absorb the energy of a bullet to make the glass bullet resistant. Each additional layer of material means that the energy from the RADAR or LASER has more signal loss due to refraction through each layer of the ballistic material for both the transmitted and reflected signals.

! **NOTE**: Only performance (how quickly a target is acquired) is affected by refracting signals through glass. The accuracy of the RADAR and LASER is not diminished.

The Issue

A growing number of customers are installing ballistic glass in their patrol vehicles and are concerned if their Speed Enforcement equipment will work as expected. They have reached out to Kustom Signals for

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reassurance that our Eagle 3 will work and are troubled by the instructions from other RADAR manufacturers. Customers do not want to be forced to move their antennas outside of the patrol vehicle risking water ingress and vandalism to their equipment.

The Solution - Testing Eagle 3 through Ballistic Glass

Kustom Signals has acquired ballistic glass windshields for lab and field testing purposes. The Eagle 3 has been tested in stationary modes along with other RADAR through ballistic glass windshields. The RADAR antennas were mounted at the same height with optimal aiming through the glass and where target tracking was not interrupted by other motorists. A stopwatch was used to determine range to target when motorist speeds were displayed. Approximately 100 motorists were measured by each RADAR. The Eagle 3 consistently measured approaching targets at ½ mile or better. It measured several receding targets up to 1 mile away. The Eagle 3 also consistently displayed fastest targets quicker than the other RADAR systems.

Conclusion

Customers can be confident that their Eagle 3 will acquire targets when operated through ballistic glass. The target acquisition time (range to target) may be diminished when compared to operating through a standard windshield, but you can be confident that you will continue to measure motorist speeds accurately.