

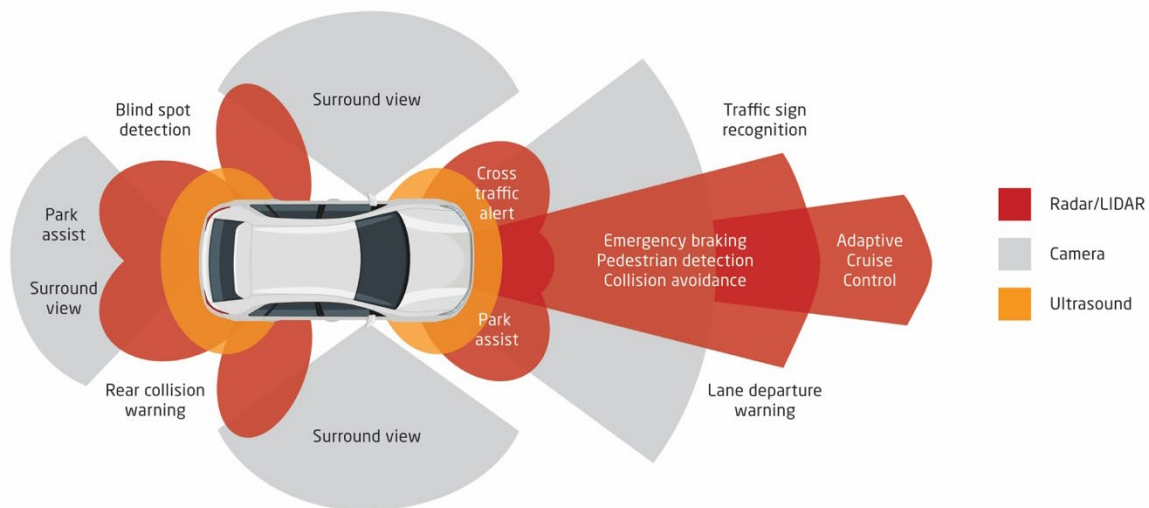
## AXALTA COATING SYSTEMS

# Advanced Driver Assistance Systems

Automobile and light truck manufacturers are making increased use of Advanced Driver Assistance Systems (ADAS). Some estimates predict the ADAS market to double from a valuation of \$30.9 billion in 2022 to \$65.1 billion by 2030 due to a larger number of vehicles being equipped with some form of ADAS.

ADAS supporting equipment located behind painted plastic surfaces is a major concern for the automotive refinish business since the coating layers can directly influence the signal emitted and received by the ADAS sensors. Radar sensors are especially sensitive to the thickness and composition of coating layers, resulting in potential interference with critical safety systems, including:

- Pedestrian detection
- Collision avoidance
- Adaptive cruise control
- Automatic emergency braking
- Blind spot detection



## COATING IMPACT ON ADAS

Certain types of coatings can affect ADAS differently than others. Coatings that contain high concentrations of aluminum can cause decreased radar signal transmission, negatively affecting ADAS operation. When the radar signal is blocked by a coating, the ability to accurately detect objects can be affected. Minimizing the loss of the radar signal is critical for ADAS functionality. In addition to reducing aluminum concentration, coating layers need to be as thin as possible to avoid unnecessary signal loss.

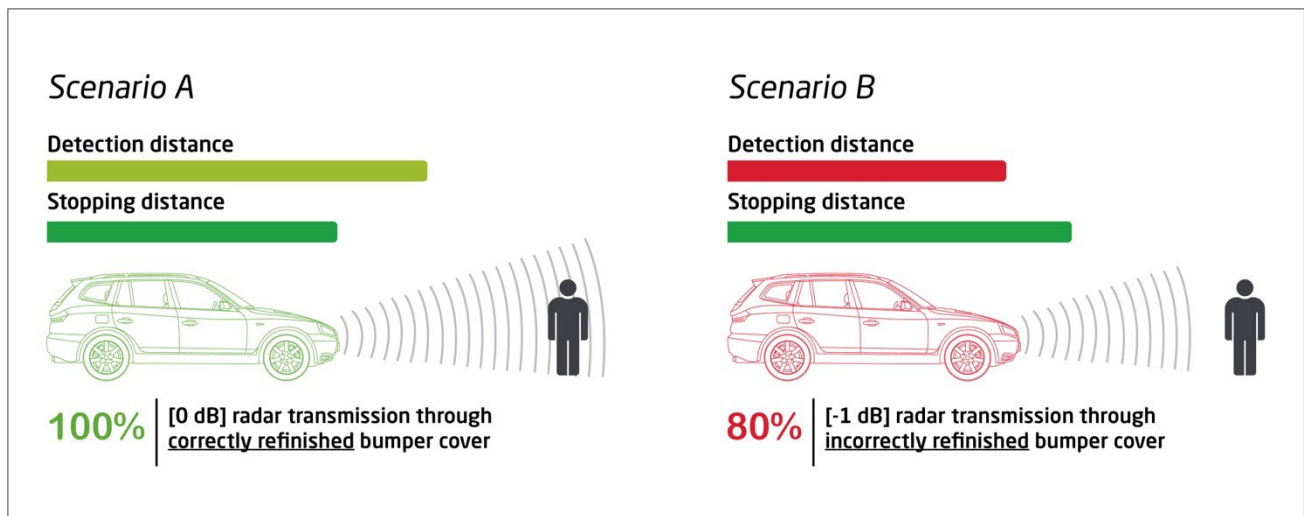
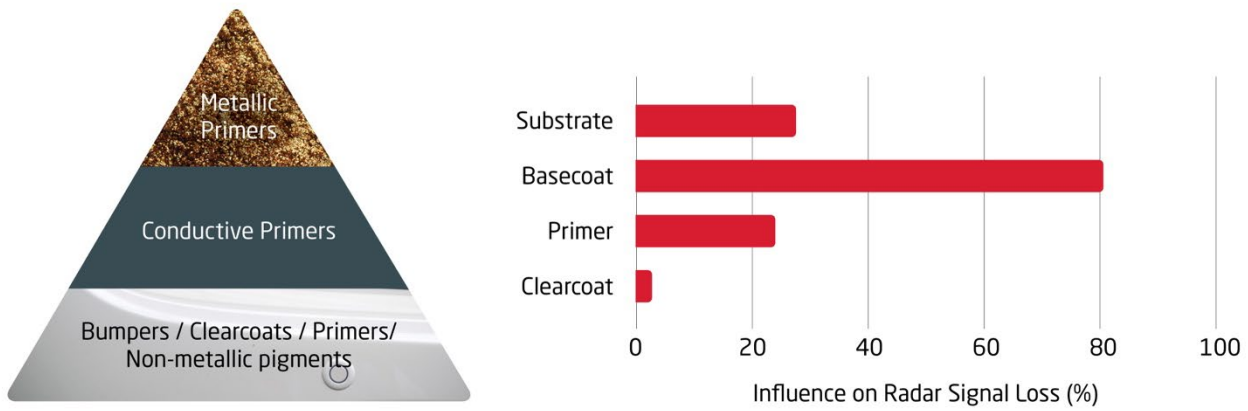


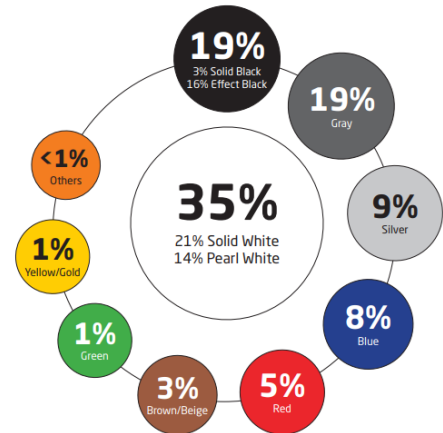
Figure 1. Schematic of radar detection distance and braking distance. In scenario a, the correctly refinished bumper cover transmits enough signal to allow for the pedestrian to be detected in time to brake. In scenario b, the detection distance is reduced because of signal loss caused by an incorrect repair, resulting in a potential collision.

Refer to the vehicle equipment guide for information to establish ADAS equipment on board and for specific requirements for repair. Collision repair estimating systems will be a resource in many cases.

**COLOR CHOICE AND RADAR APPROVED PAINT**

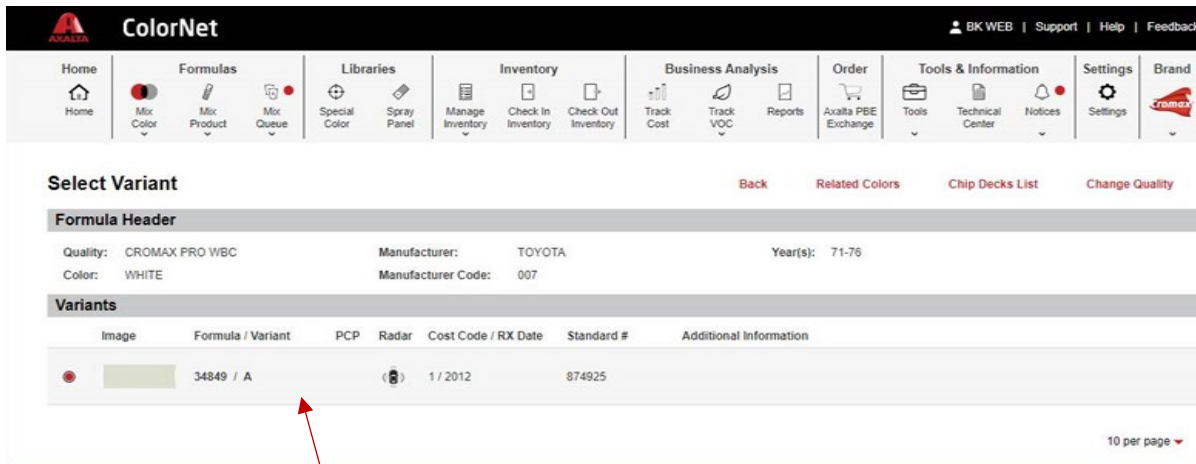
ADAS is not affected the same for all colors. Solid and pearl colors are generally acceptable, depending on OEM specifications. High concentrations of any aluminum flake, especially densely packed fine aluminums, represent the greatest impact on radar.

In certain situations, Axalta can approximate a color’s impact on ADAS and test colors during the color development process. For colors where the radar transmission loss exceeds the threshold set by the vehicle manufacturer, in certain circumstances, Axalta will be able to create a Radar Approved Paint (“Radar Approved Paint”) that will not affect the radar system. This may be accomplished by decreasing aluminum content or using alternate toners. Adjustments required for creating a Radar Approved Paint, however, may result in different color position. For example, the standard color may be a better match than the Radar Approved Paint, but use of the standard color could interfere with ADAS performance. Before committing color to the car or part, spray out testing will be essential to check for color match and to avoid excess film build.



If the vehicle being repaired is equipped with ADAS, Axalta recommends using Radar Approved Paint. Axalta does not accept any responsibility for and shall not have any liability with respect to the selection of paint color formulas.

In ColorNet, Radar Approved Paint will now have an icon associated with them. See below:



Beginning in March 2023, when Radar Approved Paint is chosen, ColorNet will also display a pop-up message that will read: “This formula was created to facilitate radar transmission.”

## **REFINISH REPAIRS**

OEMs precisely engineer the thickness and composition of both the bumper and the paint layers to allow for optimal ADAS performance. To ensure ADAS safe repairs, it is critically important to consult OEM repair guidelines for information on restrictions on structural repairs, re-coating, blending, and component replacement. It is important to use Radar Approved Paint when painting a vehicle that is equipped with ADAS. Failure to do so could negatively affect the ADAS. While OEM specifications vary significantly, it is important to note that use of damaged parts, excessive film thicknesses, non-approved replacement bumpers, and blended coatings can affect ADAS sensor operation.

It is mandatory to follow OEM guidelines for the repair and application of Radar Approved Paint when working on vehicles equipped with ADAS. One should also follow the OEM guidelines for testing the proper operation of ADAS before the vehicle is put back into service.

## **LEGAL NOTICE**

The above bulletin does not provide any guarantees that any specific ADAS will function properly with any paints or coatings. However, failure to follow the steps above may affect the ADAS. Axalta does not accept any responsibility for and shall not have any liability with respect to the selection of paint color formulas.

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