



October 2022

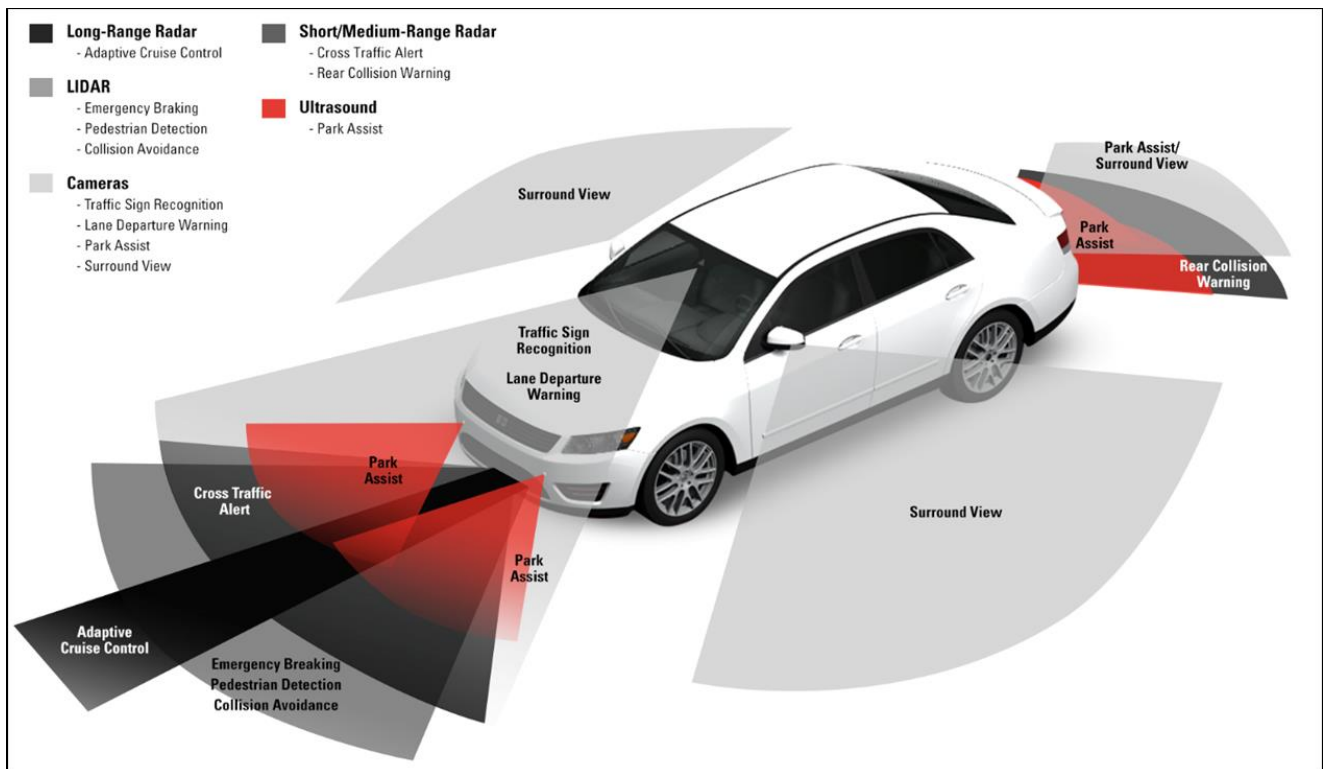
Technical Bulletin

Advanced Driver Assistance Systems - RADAR

Advanced Driver Assistance Systems

Vehicle manufacturers worldwide are increasingly deploying Advanced Driver Assistance Systems (ADAS) in their products including RADAR, ultrasound, cameras, and LiDAR.

By 2025, it is forecast that 85% of new cars and light trucks will be equipped with at least one type of ADAS.



ADAS and Coatings

ADAS equipment is usually located behind the painted surfaces of cars and light trucks so there may be an interaction between the equipment, the panels (metal or plastic) and the coatings.

RADAR Equipment

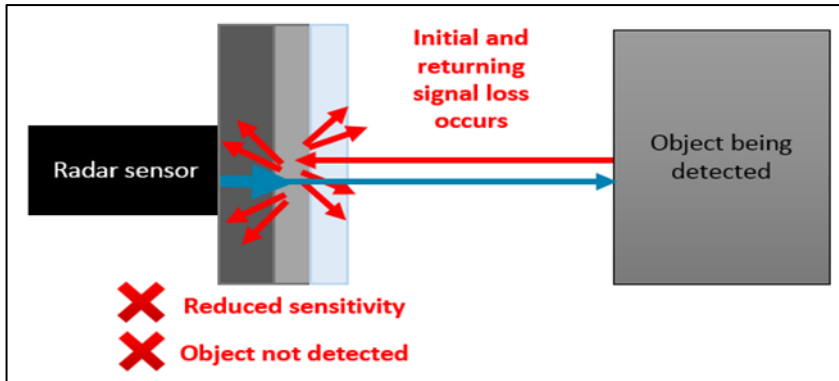
RADAR equipment is being increasingly deployed on new cars and light trucks and is used to provide long-range adaptive cruise control (also known as traffic-aware cruise control), and short-range cross-traffic alert and rear collision warning.

Coatings and RADAR

RADAR equipment is usually located behind the bumper on cars and light trucks.

The RADAR signals pass through the bumper and coatings as they are sent into the environment and the reflected signals pass through the coatings and bumper again before they are received by the RADAR equipment.

In certain circumstances there can be loss in the transmission of RADAR signals passing through painted panels (plastic bumpers). If the loss of RADAR transmission through the painted plastic bumper exceeds a certain threshold, then the functioning of the RADAR may be diminished, and it may not function as designed.

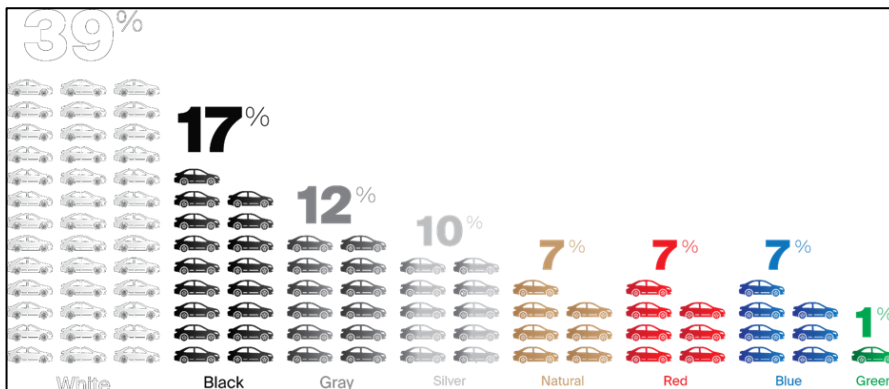


Increasingly, vehicle manufacturers are setting thresholds for RADAR transmission.

RADAR Transmission Loss and Color

RADAR transmission loss through painted bumpers does not affect all colors and is mostly associated with metallic paints. The aluminium flake pigments used to create metallic paint effects interfere with the transmission of the RADAR signals.

According to PPG’s Global Automotive Color Trend information, approximately 25% of all new cars and light trucks are painted in metallic colors (see silver and grey below).



Repairing and Refinishing Vehicles Equipped with RADAR

To establish whether a vehicle is equipped with RADAR please refer to the vehicle manufacturer’s equipment guide. In addition, your collision repair estimating system may provide information about the presence of RADAR equipment on the vehicle being repaired.

RADAR Capable Color Formulas

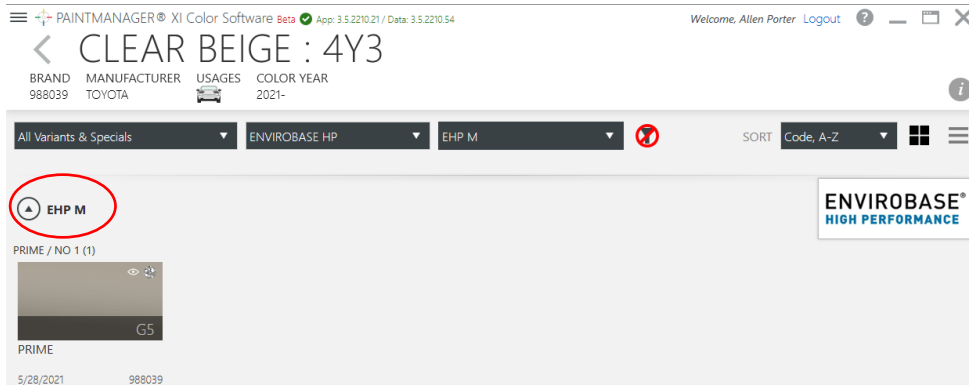
During the color matching process, PPG’s Refinish color laboratories are now measuring vehicle color formulas for RADAR transmission loss. The majority of colors are able to allow RADAR signals to pass through with little or no loss and the standard color formula may be used.

PPG Technical Bulletin, Advanced Driver Assistance Systems – RADAR, continued

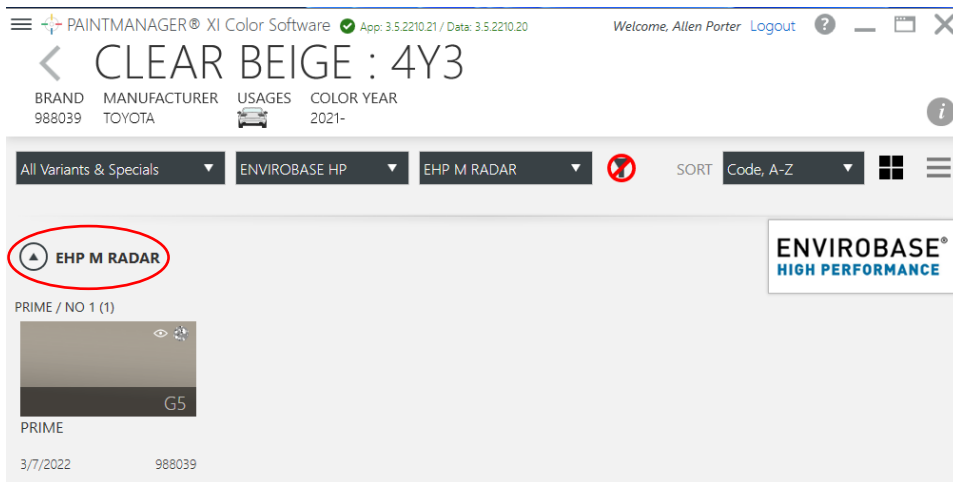
For the small number of colors where the measured RADAR transmission loss is above the threshold set by the vehicle manufacturer, PPG is providing a special, additional “RADAR capable” paint system and color formula.

When searching for a color with the vehicle manufacturer’s color code using the PAINTMANAGER® XI software, if a RADAR capable match formula is available it will be displayed on the results screen. If a RADAR capable color match is available, it will also be displayed if a color chip or RAPIDMATCH® search is employed.

When searching for a color the available paint systems are presented in the *PaintManager* XI software (in this case EHP M is the standard paint system).



In the event that a RADAR capable color match formula is available this will be also presented in the *PaintManager* XI software (in this case EHP M RADAR is the RADAR capable paint system).



RADAR Capable Color Match

For the small number of colors where the measured RADAR transmission loss is above the threshold set by the vehicle manufacturer, PPG is providing a special “RADAR capable” paint system and color formula. This is usually done by replacing some or all of the aluminium toners with existing, alternative toners.

RADAR capable color matches will be available in PPG’s premium waterborne color lines – ENVIROBASE® High Performance basecoat, AQUABASE® Plus basecoat, and AQUAMAX® Extra basecoat.

There may be some differences in color between the standard color formula and the RADAR capable formula. This is because the standard color formula prioritizes color alignment, while the RADAR capable match also has to take RADAR transmission loss into account. It is recommended that a test panel is sprayed first to check the color.

In addition, the comments section will include the following statement referring to this technical bulletin.

RADAR capable formula: specially formulated to minimize RADAR transmission loss. Refer to vehicle manufacturer's repair guidelines and PPG technical bulletin.

Using a RADAR Capable Color Formula

It is important to use the RADAR capable color match when painting a bumper which has RADAR equipment located behind the bumper. This will help to ensure that the RADAR continues to function as designed by the vehicle manufacturer.

If the repair includes a bumper and additional panels, such as the wing/fender and/or bonnet/hood, the RADAR capable color formula can be used on the bumper and other parts. Mixing one color is the most efficient way of repairing the vehicle. It is recommended that a test panel is sprayed first to check the color.

If the vehicle being repaired is equipped with RADAR but the damaged area does not include the bumper (behind which the RADAR is located), it is not necessary to use the RADAR capable color formula.

Additional Information

Always make sure to follow the manufacturer's guidelines for repairing vehicles equipped with RADAR.

It is also important to follow the manufacturer's guidelines for testing the correct operation of RADAR and/or any other ADAS before returning the repaired vehicle to service.

Legal Notice

When refinishing vehicles equipped with RADAR, there may be two color formulas available for the color. The standard formula may have a more precise color match but could interfere with the performance of RADAR. The RADAR capable color formula is specifically formulated to not impair the functionality of RADAR but the color match may not be as precise. Please check whether the vehicle being repaired is equipped with RADAR and refer to the vehicle manufacturer's repair guidelines. If RADAR equipped, please also ensure that the vehicle owner is aware of the two available formulas. PPG does not warrant or accept any responsibility for, and shall not have any liability with respect to, selection of the formula.