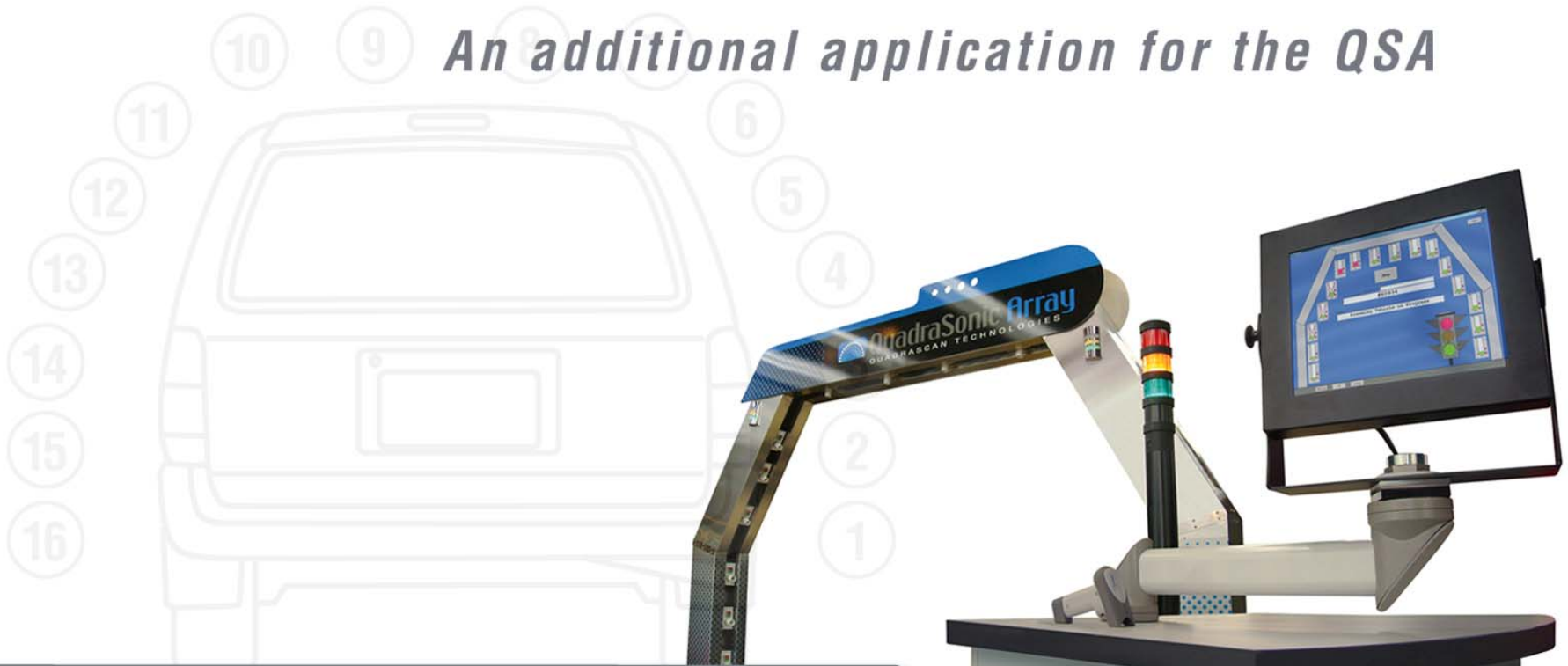


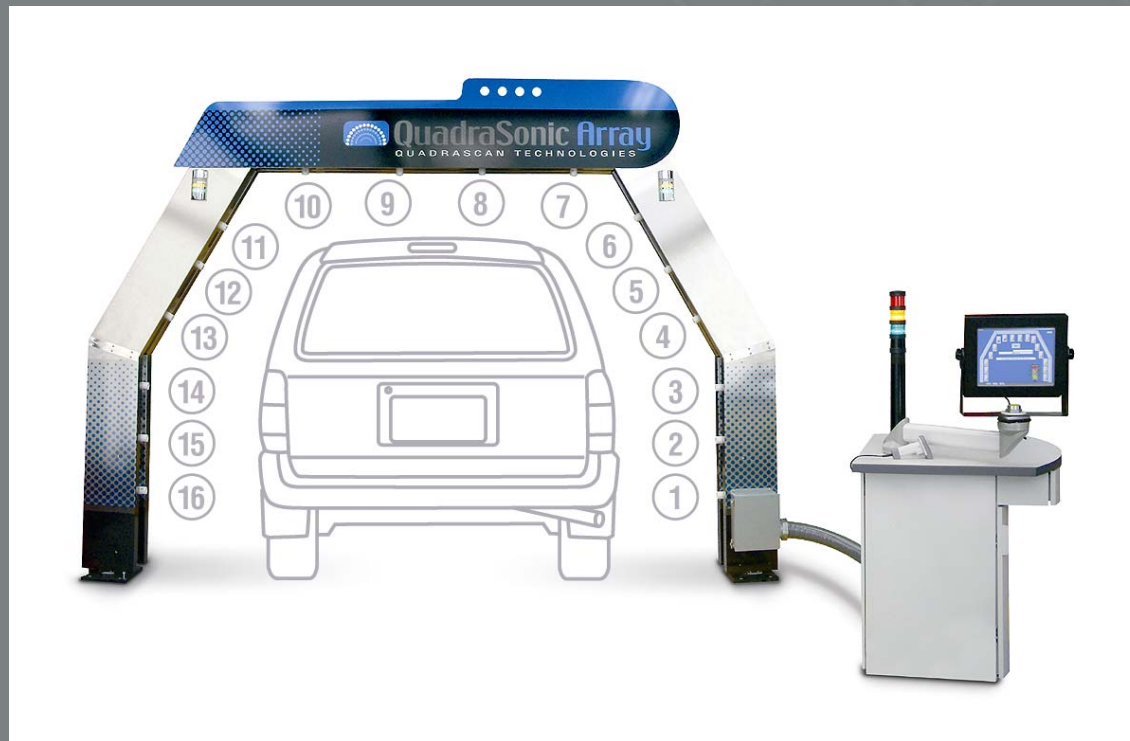
Real Time Seal Evaluations

An additional application for the QSA

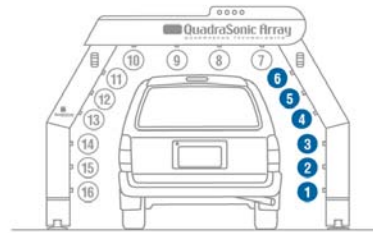
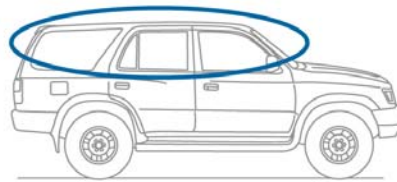


- Company “X” recently had a plant trial run on primary door seals. Normally during a plant trial run the results are based on feedback from the employees installing the new parts and any repair data that correlates to the trial.
- During this PTR, the decision was made to use the QuadraSonic Array, a developing technology, to evaluate the effectiveness of the new primary door seals.
- The QuadraSonic Array was previously run at “Plant X” for 3.5 months. During that time, base line data for a sealed vehicle was developed.

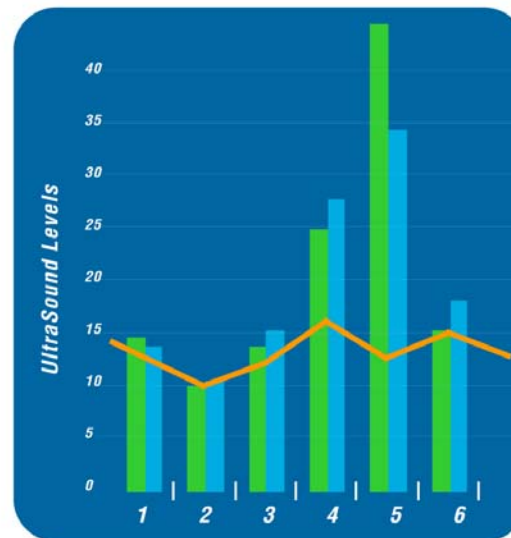
The QuadraSonic Array is comprised of 16 ultrasound receivers that are equally distributed around the perimeter of the vehicle.



Array Sensor #5 has historically produced wind noise and water intrusion.
New seal shows a 22.5% improvement over the current seal.

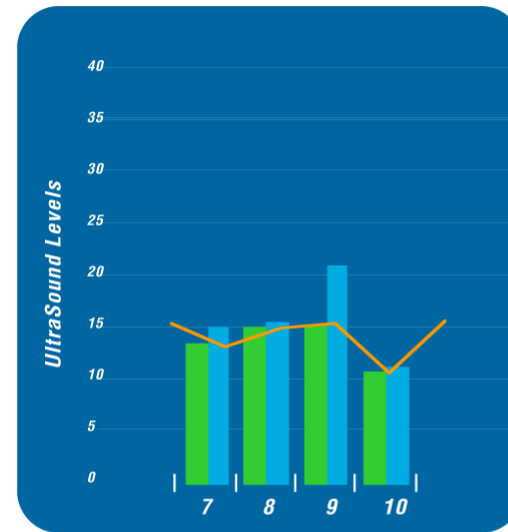
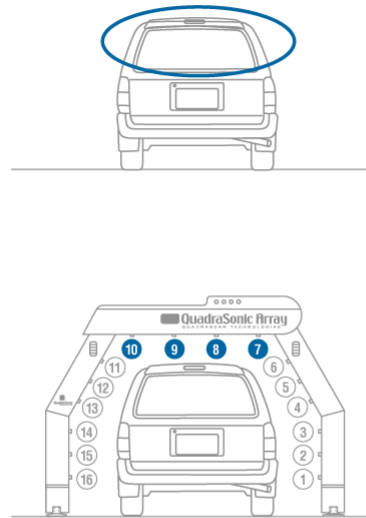


Array Sensors 1-6
RFD, RRD, and
Right side liftgate



 = Current Seal  = New Seal
 = Sealed

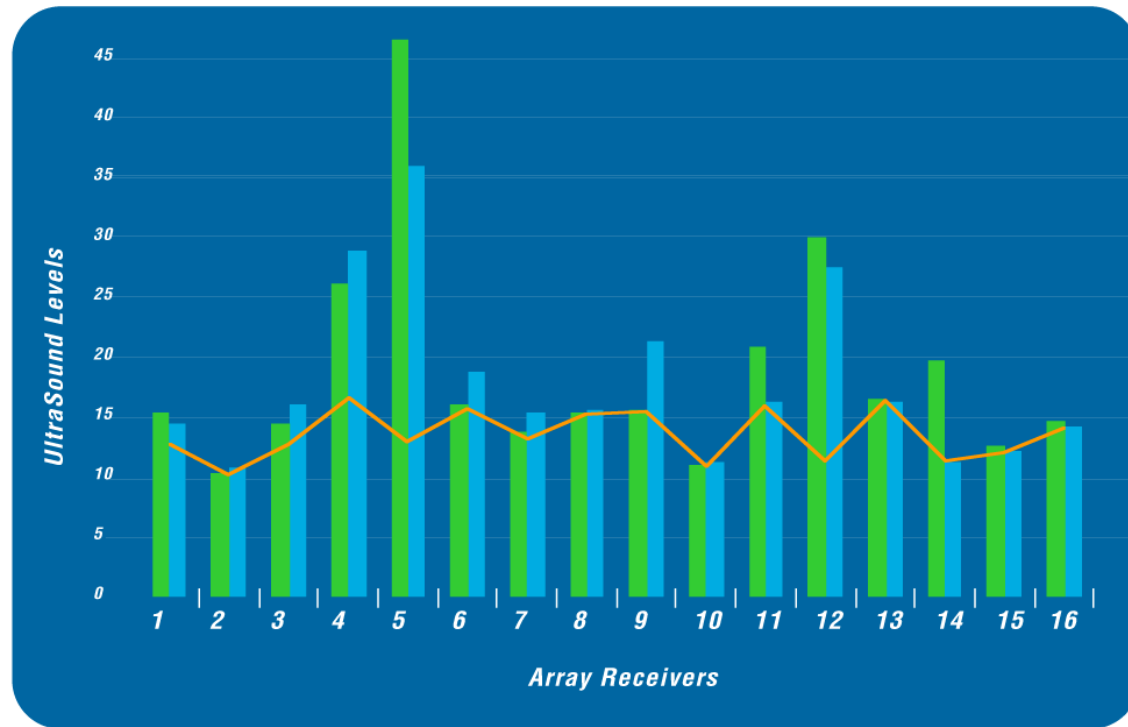
The Array #9 sensor spike correlates to a loose mounting grommet for XM Radio antenna on the roof.



Array Sensors 7-10
Windshield, Sunroof, Liftgate

● = Current Seal ● = New Seal
— = Sealed

Primary Door Seal Data Overview



 = Current Seal  = New Seal  = Sealed

The QuadraSonic Array allows us to immediately determine the effectiveness of any changes that occur during the assembly process.

It is a measurement tool that is repeatable and non- biased.

With further software developments this tool has the capability to be finely tuned to pinpoint exact locations of potential water intrusion, wind noise, or fit issues.