MATERIAL INNOVATION *FOR NEXT–GEN ADAS*

Radar is just one component within ADAS, but crucial for:

- Collision avoidance
- Pedestrian & cycle detection
- Detection of range, angle & velocity of objects
- Autonomous driving

Radar regulation & performance requirements —

The EU banned the use of 24 GHz frequency band for automotive radar system: in 2022. Thus, the industry has moved to

77 & 79 GHz.

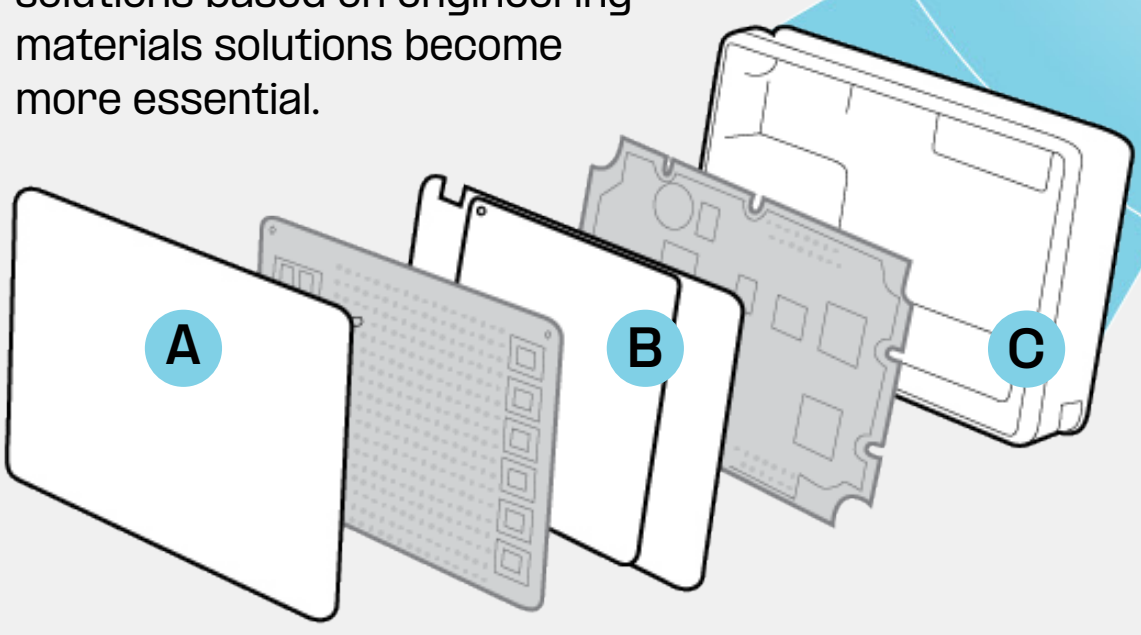
High–frequency radar systems are:

More Compact, More Powerful, More Expensive

This means 24x spatial resolution enhancement and 3x velocity resolution for new systems. Also, there is a need to deliver 77/78 GHz performance at a comparable price point to the 24 GHz systems. No doubt, there are challenges when designing compact housing with improved heat management.

Proper thermal management, EMI shielding & low signal losses

As radars become more compact in all three dimensions while operating at higher power, thermal management and EMI shielding solutions based on engineering materials solutions become more essential.



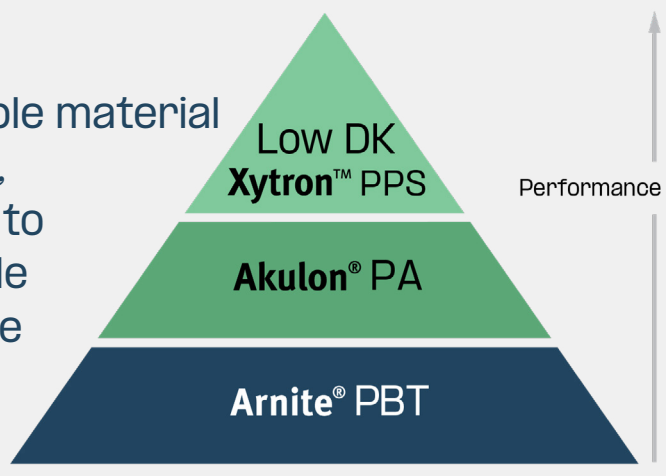
Radome cover (A)
good performance requires low dielectric losses

Mid Frame (B)
good performance requires very low radar reflecting materials

Back Cover (C)
good performance requires high EMI shielding

The Right Balance of Performance & Value

Envalior offers a complete laser weldable material portfolio for radomes and back covers, ranging from PBT to low Dk/Df PPS up to highly conductive PPS compounds. While Envalior continues Xytron innovation, we also leverage the proven properties of Arnite PBT in radar applications.



HIGHER POWER LEVELS	• Temperatures up to 110°C • High hydrolytic and chemical resistance • UL94–V0	• CUT up to 210°C, HDT: 215°C • High mechanics
RADAR TRANSPARENCY	• Low Dk/Df material for front cover	• DK 3.2@77GHz @ T=23C • Df 0.0027@77Gz @ T=23C
THERMAL MANAGEMENT	Thermal conductivity for back cover with λ=0.5W/mK through plane conductivity	
EMI SHIELDING	EMI Shielding via back cover delivering >50dB across entire frequency range	
EMI ABSORBING	With a medium level volume resistivity of 10E2 – 10E5 ϖcm, our EMI absorbing Akulon PA compounds allow high radar absorption and no reflections while ensuring the highest mechanics and design flexibility for the mid frame	

ENVALIOR — YOUR GLOBAL ADAS INNOVATION PARTNER

Full ADAS product portfolio

Global R&D

Prototype development support

Extensive experience in automotive/E&E

LEARN MORE ABOUT ADAS MATERIAL SOLUTIONS AT ENVALIOR.COM

Envalior
Imagine the Future