HARMAN

**Life-enhancing
Intelligent
Vehicle
Solutions**

FACT SHEET
HARMAN Future Navigation

WHERE NAVIGATION MEETS DATA FUSION

Intelligent Predictive Guidance

The autonomous car promises and prioritizes ever increasing safety above all else. To assist our customers on that promise, HARMAN's latest navigation solutions deliver a continually learning guidance engine that fuses together a dynamic number of embedded sensor and cloud based services.

Real time all the time

Passengers can experience a powerful, intuitive, and seamless personalized navigation with our network-wide machine learning capabilities and near real time updates to the standard supplier-based maps. Data collected by sensors in each car are delivered to and processed by the HARMAN cloud to provide the most recent and relevant information to the entire participating user base.

As the passengers approach their destination, they will find a wealth of helpful information instantaneously suggested to solve their parking, fueling/charging, or purchasing concerns. Every interaction, regardless of outcome, helps the system personalize the next interaction in order to deliver highly relevant, highly desirable, and highly valuable location based customer services.

Every one tenth of a second, the HARMAN solution is providing sub-meter positional accuracy to any downstream service. This helps facilitate the development and delivery of a high assurance, high safety, and highly auditable autonomous vehicle.

HARMAN LIVS

HARMAN's Life-Enhancing Intelligent Vehicle Solutions (LIVS) use an end-to-end approach by integrating the in-car computing platform with the cloud platform.

SCALABLE | Compute Platforms
Tailor-made for the needs of automakers and vehicle segments

CONNECTED | Modular Connectivity
Ready for delivering connected services – enhancing efficiency, productivity, and entertainment

SAFE | ADAS & E-Horizon
Monitoring and assessing the surroundings of the entire vehicle and beyond line of sight

SECURE | 5+1 Security Architecture
Full protection for the driver and the vehicle, OTA (over-the-air) updateable

Key highlights

- End-to-end connected navigation based on crowd sourced data intelligence
- Dynamic map content
- Connected E-Horizon
- Support for Highly Automated Driving data

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Features and benefits

End-to-end Connected Navigation Based on Data Intelligence	• Navigation that is always connected and always improving • Deep integration with other car subsystems for better understanding of the driver and the environment
Dynamic Map Content	• Road signs, traffic lights, live lanes, road conditions, dangerous areas, emergency vehicles, ghost cars • Scalable big data analytics and business insights • Streaming dynamic map updates over NDS
Connected E-Horizon	• Use information from dynamic map layers to inform and protect the driver; be the sixth sense of the car • Integrates with centralized route reservation system to provide the most safe, comfortable and efficient choice based on real-time car network data
Multi Display Support	• Map viewer supports multiple displays including instrument cluster and HUD • Industry first, open standards based synchronization between a HU Map Viewer and a Cluster ADAS Viewer
Support for Highly Automated Driving (HAD) Data	• 3D lanes, full-lane connectivity, virtual reality around intersections and blind spots • Standards based 3D indoor parking representation allows for intelligent (valet) driver experience while collecting and sharing parking availability using various car sensors
OTA DB Updates	• Over-the-air NDS DB incremental updates
Global Navigation Solution	• Worldwide maps, including Asia
Lane Level Positioning	• Sub-meter localization accuracy based on GNSS, 3D gyro, camera, lidar and other car sensors
Advanced Search	• Onboard and offboard hybrid search capability using one-box search
Predictive Services	• Onboard inference agent that learns the driver's frequent locations, favorite routes and POIs, commute habits

An industry expert as partner

HARMAN is the market leader in connected car solutions for the world's automakers. HARMAN's innovative and highly integrated infotainment technologies offer automakers the most extensive solutions for advanced navigation, intuitive user interfaces, integrated audio, device connectivity, cyber security, and connected safety, just to name a few. From Boston to Berlin to Bangalore, HARMAN is delivering a dynamic in-car experience for an increasingly connected world.

Visit our website at **www.harman.com**

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