

Automotive connectivity testing

Radio equipment testing for component and vehicle approval



Connected vehicles offer a new range of vehicle applications, from infotainment to automatic emergency call (eCall). However, developments in on-board connected equipment bring with them new regulatory requirements for component and vehicle manufacturers in order to ensure vehicle safety and performance.

Applus+ Laboratories provides the automotive industry with testing and engineering services to help them ensure compliance and is the ideal partner for the development, pre-conformance and approval process.

Regulatory approval tests for vehicles and their components

Automotive radio equipment must comply with the mandatory requirements set out in national and international regulations to ensure a safe and efficient use of the radio spectrum, according to Radio Equipment Directive 2014/53/EU. These conformity requirements are divided into four testing areas:

Radio-spectrum protection testing

- EN 303 413 (GNSS receivers)
- EN 300 220, EN 300 330, EN 300 440 (RFID / RKE / NFC / SRD)
- EN 300 328 (Bluetooth / WLAN)
- EN 301 893 (5 GHz RLAN)
- EN 303 345, EN 303 340 (broadcast receivers)

Electromagnetic compatibility testing (EMC/EMI)

- EN 301 489-1
- EN 301 489-3 (RFID / RKE / NFC / SRD)
- EN 301 489-19 (GNSS)
- EN 301 489-7/24/52 (broadband cellular 2G/3G/4G)
- EN 301 489-17 (Bluetooth / WLAN / RLAN)
- EN 55032, EN 55013, EN 55020 (broadcast receivers)

Electrical safety testing

- EN 60950-1, EN 60065

Maximum permissible exposure testing (MPE)

- EN 62311

Regulatory approval and marks for vehicles and their components

Applus+ is a Radio Equipment Directive (RED) Notified Body, performing conformity assessments based on B and H modules.

Applus+ is recognised for E-Mark approval for vehicle components and whole vehicles.

Automotive OEM approval

Applus+ Laboratories specialises in [design-validation and product-validation tests for automotive components](#). We support component manufacturers in defining their design-validation and product-validation test plans and conduct most of the required tests. Our multi-technological laboratories are ISO 17025 accredited and our EMC laboratories in Spain, UK (3C Test Limited) and Italy (Emilab srl) are officially recognised by OEMs including General Motors, Jaguar Land Rover, Fiat Chrysler, Ford and Hyundai.

- [Automotive EMC and electrical testing](#)
- Automotive environmental testing
- Automotive vibration and acoustics testing
- Automotive materials testing (metals, composites and surface treatments)

eCall testing

Applus+ Laboratories offers pan-European eCall pre-conformance and functional testing (at IVS and whole-vehicle levels) and, once the legislative framework has been set, will also provide eCall system approval. We conduct tests according to the following standards:

- EN 16072:2015 "Intelligent transport systems – eSafety – Pan-European eCall operating requirements"
- EN 16062:2015 "Intelligent transport systems – eSafety – eCall high level application requirements (HLAR)"
- EN 16454:2015 "Intelligent transport systems – eSafety – eCall end to end conformance testing"
- EN 15722:2015 "Intelligent transport systems – eSafety – eCall minimum set of data (MSD)"

ERA-GLONASS testing

Thanks to our knowledge, expertise and cutting-edge equipment, Applus+ is the ideal partner to carry out efficient ERA-GLONASS pre-conformance and functional testing before final approval (at IVS and whole-vehicle levels), thereby decreasing the device's time to market. We conduct testing according to the following standards:

- GOST R 55530: "Functional test methods of in-vehicle emergency call systems and data transfer protocols"
- GOST R 55532: "Test methods of in-vehicle emergency call system crash detection features" (for crash-test simulation)
- GOST R 55531: "Test methods for verification of in-vehicle emergency call system conformity to quality requirements for loudspeaker communication in vehicle cabin"
- GOST R 55533: "Test methods for the conformity assurance of in-vehicle emergency call system to the requirements for GSM, UMTS"
- GOST R 55534: "Test methods for the conformity assurance of in-vehicle emergency call system to the requirements for navigation performance and properties"