

# Paving the way for C2C communications

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*Qosmotec, a provider of air interface emulation equipment for wireless network testing, and Azimuth Systems, Inc., a leading provider of automated, real-world mobile performance test solutions, have decided to team up to develop a Car-to-Car (C2C) test solution. By combining Qosmotec's signal strength emulator QPER with Azimuth's ACE MX channel emulator, the solution simulates all traffic, mobility and channel aspects of a C2C environment. This solution enables realistic, and comprehensive C2C interoperability testing in the lab explains Mark Hakim, Qosmotec's Managing Director.*

Founded in 2004, Qosmotec started out with a focus on producing test systems for public mobile networks. Many European mobile network operators use their technology now, Mr. Hakim points out. As operators in the telecommunications industry are under massive cost pressures, this market has become stagnant, which has made Qosmotec decide to find new applications for its wireless network testing expertise. The company now also provides test tools for railway and toll networks, among others. This attracted the attention of ERTICO - ITS Europe, a partnership of around 100 companies and institutions involved in the production of Intelligent Transport Systems (ITS). Mr. Hakim explains that, back in 2013, ERTICO invited Qosmotec to present their test solutions in front of an audience of car manufacturers. "We discovered that there was a lot of interest in our technology for Car-to-Car applications. The field suits us

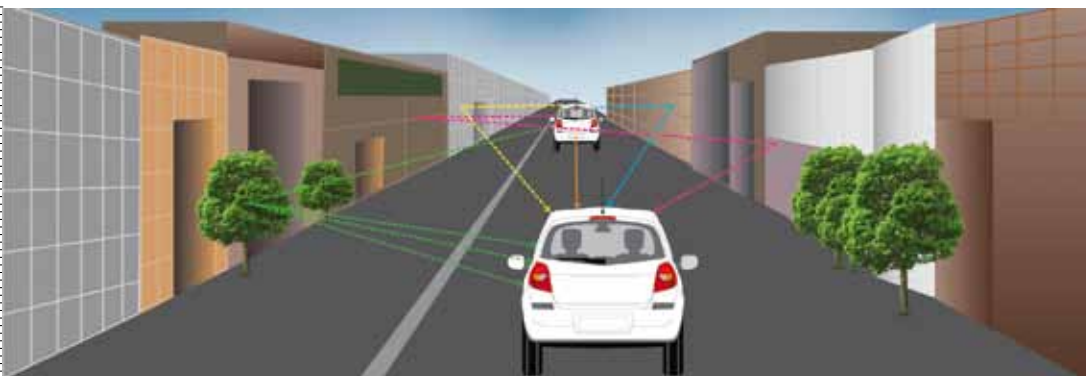
perfectly: C2C is in an early stage of development and quality requirements are very high because of the safety aspect."

Mr. Hakim points out that testing Car-to-Car communication in the lab requires the emulation of a significant number of radio links (each of which maps to a link between two cars). While it is sufficient to simulate the path loss on many of the links, it provides a significant additional value to be able to emulate all possible channel conditions on at least some dedicated links. Qosmotec's field strength emulator system provides the attenuation links for these tests; the field strength emulator offers a large number of configurable links that can be configured to reflect the different path loss between the cars. This also explains the value of Qosmotec's partnership with Azimuth. The latter's ACE MX channel emulator complements Qosmotec's technology by emulating



all aspects of the radio channel (path loss, Doppler, propagation delay, fading, AWGN, etc.) on specific links. The QPER-C2X software controls this integrated solution and provides a graphical interface to create and configure the physical environment and the traffic model.

"Now, where Car-to-Car technology is on the step from research activities towards rollout on the streets, systems for interoperability testing become indispensable," Mr. Hakim comments. "Nobody wants to risk mounting a technology in cars that has not been examined under absolutely real-life conditions. Our joint solution with Azimuth enables us to offer a best fitting solution for emulating air interface conditions on a test bench. This will accelerate the deployment of Car-to-Car communication."



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