

Automotive EMC Standards Conference

This past February, I had the privilege of attending Southeastern Michigan IEEE EMC Society’s Chapter VIII Automotive EMC Standards Conference – (AutoEMC Fest).

There, I finally met Russ Carstensen in the flesh. Although we had spoken occasionally over the years by the phone, this was our first face-to-face contact. Not surprisingly, Russ did not remember me from our past phone conversations and considering all the people that attended the conference, Russ still probably won’t remember me.

Russ addressed the attendees for approximately fifteen minutes on February 4th. His topic was NARTE EMC certification benefits, and included a discussion of the NARTE examination. Russ is the ideal candidate to represent NARTE to the world. His knowledge and passion are contagious.

Harmonizing Standards

The best news disclosed at the AutoEMC Fest was that DaimlerChrysler, Ford and General Motors are harmonizing their standards. This includes their reporting format. Of course there is a disclaimer: whenever possible they will harmonize their standards. They do reserve the right to differentiate to meet their needs.

An example is the radiated immunity 1.2 Ghz requirement for airport radars that has generated field concerns. Ford and General Motors have included, or are moving to incorporate this frequency into their test requirements. DaimlerChrysler has not experienced any field issues and is not creating additional requirements to cover this issue.

International OEM Harmonization

Automotive Original Equipment Manufacturers’ harmonization efforts are not just national. They are international. The goal is international harmonization; however, where technical merit and/or the OEM’s needs deviate, they reserve the option of maintaining their independence. Yes, another disclaimer, but if it were your company you’d reserve the right to operate it your way, too.

DaimlerChrysler, Ford and General Motors agreed to accept each others’ test results and methods, providing the test facility is in compliance with their certification programs [A2LA sponsored Automotive EMC Laboratory Accreditation Program (AEMCLAP) and OEM recognition - Automotive EMC recognition Process (AEMCLRP)].

These automobile giants emphasized that they do not compete against one another within the EMC arena. Each of the automotive manufacturers wants to manufacture safe and quality vehicles. Their competition lies within the sale and marketing of their vehicles. EMC itself is not the goal. EMC is a method to achieve their goal. Granted, compliance requirements and testing are necessary to validate the vehicle’s EMC characteristics and provide evidence that the vehicle’s characteristics meet environmental rigors.

Field Experiences Driving Change

Although there were many speakers at the conference, there were two who stand out directly in my fading memory: A. Neilsen, Visteon Senior EMC Technical Specialist; and K. Fraiser, Ford Motor Company Senior EMC Technical Specialist. They highlighted one critical field issue, software locks. They explained why they believe they are experiencing field problems, theorizing that many of the “no trouble found” warranty returns could be due to EMC susceptibility.

Since most warranty analysis methods do not include EMC test conditions, any product returning from the field and tested would not exhibit field symptoms.

These speakers informed us that Conducted Immunity (CI) Transient Pulses and test international standard requirements no longer reflect vehicle conditions. CI Transient Pulse characteristics and test requirements have not significantly changed since their inception. They were developed for a different technology-based vehicle.

The sheer quantity of a vehicle’s electrical and electronic components has increased dramatically in recent decades. Accordingly, EMC susceptibility testing requirements which worked in the past are no longer valid for testing today’s technology.

Based on their experiences, Ford has changed requirements to recognize and address this issue. They demonstrated a device capable of generating transients that reflect the vehicle’s operational environment and encouraged conference members to think about the issue.

In addition to putting a face to a name—Russ Carstensen—there was a lot of interesting and relevant information discussed at this AutoEMC Fest. I’ll remember both. Ω