

# New DARPA challenge is looking for innovative approaches to adaptive, software-based radio communications

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Radios are used for a wide range of tasks, from the most mundane to the most critical of communications, from garage door openers to military operations. As the use of wireless technology proliferates, radios and communication devices often compete with, interfere with, and disrupt the operations of other devices. DARPA seeks innovative approaches that ensure robust communications in such congested and contested environments.

The DARPA Spectrum Challenge is a competition for teams to create software-defined radio protocols that best use communication channels in the presence of other users and interfering signals.

Using a standardized radio hardware platform, the team that finds the best strategies for guaranteeing successful communication in the presence of other competing radios will win. In addition to bragging rights for the winning teams, one team could win as much as \$150,000.

High priority radios in the military and civilian sectors must be able to operate regardless of the ambient electromagnetic environment, to avoid disruption of communications and potential loss of life. Rapid response operations, such as [disaster relief](#), further motivate the desire for multiple [radio networks](#) to effectively share the spectrum without requiring direct coordination or spectrum preplanning. Consequently, the need to provide robust communications in the presence of interfering signals is of great importance.

"The Spectrum Challenge is focused on developing new techniques for assured communications in dynamic environments – a necessity for military and first responder missions. We have created a head-to-head competition to see who can transmit a set of data from one radio to another the most effectively and efficiently while being bombarded by interference and competing signals," said Dr. Yiftach Eisenberg, DARPA program manager. "To win this competition teams will need to develop new algorithms for software-defined radios at universities, small businesses and even on their home computers."

Registration for the Spectrum Challenge is expected to officially open in January 2013. Any U.S. academic institution, business, or individual, is eligible to compete, with certain restrictions. More information and additional details can be found at [Spectrum Challenge website](#).

Provided by DARPA

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