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AOC 2017 Presentation:

Pulse Shaping in High Power Solid State Jamming Amplifiers

Come and learn about Pulse Shaping in High Power Solid State Jamming Amplifiers from Empower RF Systems CTO Paulo Correa at this year's annual AOC Convention.

Mr. Correa will present on Thursday, November 30 at the Marriott Marquis Hotel, Marquis Ballroom, Meeting Level 2, from 12 to 1:30 pm.

What is Pulse Shaping?

The electromagnetic environment is changing at an increasing pace, and thus the importance of electronic warfare (EW) system adaptability, flexibility, and innovation has also increased. However the RF high power system amplifier has not evolved in any significant way since the inclusion of the microcontroller twenty years ago. That's a remarkable statement given the advancements seen in virtually every other application of electronic products and systems. Not only are innovative technologies needed, the EW systems engineer will benefit greatly from the new capabilities that a software defined, re-configurable, smart high power amplifier can provide.

One such capability is the breakthrough for pulse shaping where the HPA reproduces the pulse with extreme high fidelity and by doing so removes that task from the system integrator. Additional benefits include simplifying external hardware, lowering overall cost and improving SWaP.

Pulse Shaping in High Power Solid State Jamming Amplifiers

Pulse shaping, as it is done today, is an effort to fix fidelity issues caused by the transmitting amplifier and is accomplished by a combination of imperfect methods, most external to the amplifier. In this technical session, Paulo Correa will describe a new high power amplifier architecture with built in real time feedback that is capable of matching the input signal shape, minimizing droop, overshoot, ringing, rise and fall times.
Real world examples and data will be shown from an amplifier simulating pulsed jamming scenarios to illustrate the performance problems and their sources within the HPA and why future amplifier performance issues will be resolved within the amplifier using real time digital correction.
Finally, the workshop will illustrate the benefits of the proposed amplifier architecture including:

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- Real time optimization of the PA pulse characteristics
- Reduce system engineering design time
- Reduce overall size and weight of the jamming system
- Reduced hardware to correct droop
- Adaptive digital correction of the pulse in the event of variable VSWR

Speakers Bio

Paulo Correa is Empower RF's CTO with 41 years of experience in RF and microwave with past roles including Director of Advanced Studies at Thales and CTO at Thomson Broadcast and Multimedia. With 13 patents to his name, Mr. Correa is also the architect of Empower's intelligent and flexible Next Generation series of amplifiers.

Remote Live Demo in AOC Booth 314

Empower RF Systems will be exhibiting at this year's AOC convention at Booth 314. Empower RF Systems is conducting remote live demonstrations of our broadband, high power 1KW, 1 to 3 GHz amplifier. The amplifier will be housed at our headquarters in Los Angeles and viewed in the AOC exhibit venue with live streaming video while remotely controlling the amplifier from the exhibit floor through a standard web browser.

Empower RF Systems is a technologically superior supplier of High Power Solid State RF & Microwave Amplifiers. Our offerings include modules, intelligent rack-mount amplifiers, and multi-function RF Power Amplifier solutions to 6GHz, with output power combinations ranging from tens of watts to multi-kilowatts. Key capabilities and differentiators include Unprecedented size, weight and power reduction, patented architecture that includes an internal "connector-less" RF path (an industry first) with the added benefit of an inherently rugged design, user interface and diagnostics capabilities built around high performance microprocessors and an IP addressable, embedded web server.

Visit Empower RF website: http://www.EmpowerRF.com

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