

Panel Discussion

Subject: Will MEMS Replace Conventional Quartz Resonators?

Panelists:

Chair: John Vig, Consultant, USA

Adrian M. Ionescu, Nanolab, EPFL, Switzerland

Thomas Kenny, Stanford U., USA

Clark Nguyen, UC Berkeley, USA

Takeo Oita, NDK, Japan

Aaron Partridge, SiTime, USA

Rich Ruby, Avago Technologies, USA

Masako Tanaka, Epson-Toyocom, Japan

Gregory Weaver, Johns Hopkins Applied Physics Lab., USA



Oscillators based on MEMS resonators offer benefits that are unavailable in conventional quartz resonators, such as small size, low cost, and easier integration (with IC technology). On the other hand, conventional quartz resonators offer capabilities that are not available in MEMS (at least, not yet), such as superior frequency vs. temperature stability over a wide temperature range, better short term stability, lower phase noise (both close to and far from the carrier), and lower aging. During the past decade, silicon MEMS resonators have improved greatly, while quartz MEMS resonators have also become available. At the low end of the oscillator market, both silicon MEMS and quartz MEMS are being mass produced today.

The panelists, who include experts in both MEMS and conventional quartz technologies, will compare the advantages and disadvantages of the two technologies. The answers to the question "Will MEMS Replace Conventional Quartz Resonators?" will be debated.