September 27, 2017, 6:00 PM – 8:00 PM
Wegmans East Avenue, Timber Room
1750 East Avenue, Rochester, NY 14610

Rochester Section Joint Microwave Theory and Techniques & Antennas and Propagation Society presents:

Quartz Precision Frequency Control Devices

Presented by:
David Chandler
Product Line Manager for Rubidium Products &
Application Engineer for the Precision Products Group
Vectron International

Abstract:

Precision frequency control devices are required in a broad array of applications including radios, radars, cellular communications, test equipment, and guided ordinance. Numerous different technologies are used to generate frequencies in the HF, UHF and VHF regions. This presentation will provide an in depth review of how quartz is utilized to create signals within these spectra with fractional frequencies errors as low as 1E-10. The discussion will include the basic piezoelectric principles used in bulk acoustic wave (BAW) and surface acoustic wave (SAW) resonators, and will focus on the sources instabilities that occur during sustained operation in electronic oscillators. Means of improving these instabilities through temperature compensation, oven controlled enclosures, and disciplining to Global Navigation Satellite Systems (GNSS) will be covered. The presentation will conclude with a brief comparison to other available frequency control sources in including atomic resonators and microelectromechanical (MEMS) resonators.

Biography:

David Chandler received his bachelor degree from Cornell University in Applied Engineering Physics in 1992, and Masters of Engineering in Electrical Engineering from Penn State Harrisburg in 2005. David served in the United States Army until 1996 as a captain in a Patriot missile battalion. After departing the Army he joined McCoy Electronics (now part of Vectron), where he has worked for 21 years. During his tenure at Vectron he has been a quality engineer, design engineer, and product line manager for various frequency controls products including OCXOs and GNSS disciplined modules. He is currently product line manager for rubidium products, as well as application engineer for the precision products group at Vectron. He has authored articles in trade magazines and IEEE.

Dinner:

A buffet dinner with options including chicken french, cheese lasagna, and pulled pork sliders will be provided by the MTT / AP Society. The dinner will be held in the Timber Room at Wegmans East Avenue. There is no fee for the dinner, but registration is required.

Agenda:

6:00 PM – 6:30 PM: Arrive, mingle, eat
6:30 PM – 7:30 PM: Presentation
7:30 PM – 8:00 PM: Q&A, Continued discussions, etc.

Registration:

Space is limited in the Timber Room, so register early.
https://meetings.vtools.ieee.org/m/46622