ABSTRACT
Modern radio-frequency communication systems utilize digitally-modulated carrier signals which cause difficulty for traditional RF test methods based on the response of the unit under test to one or more sinusoidal tones. Sampling the modulation envelope is a powerful method to assess the accuracy of a digitally-modulated signal because of the availability of a number of different algorithms to post-process the sample data. In some cases, a sinusoidal RF test signal is a special case of a digitally-modulated signal. In other cases, two different RF tests (using different test equipment) correspond to different methods of processing a single set of sample data. This tutorial will illustrate these methods and explain how the effects of noise, linear distortion, and nonlinear distortion may be extracted from samples of a digitally-modulated signal.