Contents
March 2020 • Volume 104 • Number 3

30 Build Your Own Open-Wire Line
   Robert J. Zavrel, Jr., W7SX

34 Using Integrated Circuits to Add Propagation Delays
   Klaus Spies, WB9YBM

36 “Leaky” Antenna Switches
   Ellwood (Woody) Brem, K3YV

38 Batteries for the Elecraft KX3 and Other Low-Power Radios
   Eliot Mayer, W1MJ

42 Product Review
   Mark Wilson, K1RO
   Xiegu G90 HF Transceiver;
   SOTABEAMS Wolfwave Audio
   Processor; Inexpensive Antenna
   System Tuning Indicators

60 A Grid DXpedition in the Upper Peninsula
   Dan Brandner, N9DJB

64 How the Ionosphere Was Confirmed
   Robert H. Welsh, N3RW

67 Eclectic Tech: A New Technical Podcast for Amateur Radio!

68 The Saga of Clipperton Island
   Allison McLellan

72 Nominations Now Being Accepted for 2020 McGan Silver
   Antenna Award for Excellence in Public Relations

80 The 2019 IARU HF World Championship Results
   Bob Raymond, WA1Z

87 The April 2020 ARRL Rookie Roundup — Phone

93 A Look Back: May 1970