Moving On

By the time this issue appears in your mail box the Dayton Hamvention® will have moved from Trotwood to Xenia, Ohio. Times change, we move on, but at the new venue you can still find your basic bargain teen-aged transceivers that can be easily upgraded to modern capabilities. Amateur Radio moves on as well, sometimes subtly.

How many of you, Dear Readers, have logged two-way contacts using a Software Defined Radio (SDR) system? I believe, a greater number than you might think. A basic SDR system comprises some form of RF front end, followed by conversion between the analog and digital realms, along with a general purpose personal computer (PC). The PC operates software producing a wide range of different communications protocols, or “waveforms”. More simply, it is a ham transceiver (that bargain find at the hamfest) connected via a sound card to a PC running digital protocol software — a protocol or waveform that is not native to the transceiver. Surprised? In this scheme the transceiver’s SSBI “audio” is just the last IF that is centered near 1500 Hz. The PC software implements the protocols, including software filters as narrow as a few hertz, and presents the operator with a suitable graphical user interface. Teen-aged radio, in fact any modern transceiver: meet SDR capability. You point and click your way into a modern-day contact — not otherwise possible with just the bare-bones transceiver — using protocols that were not even in existence when that transceiver was manufactured!

The point is that much innovation has occurred in the design of digital waveforms and digital protocols — the software of this basic SDR — that greatly extends the communications capability of Amateur Radio, and it has happened subtly. More comprehensive SDRs have pushed the digitization closer and closer to the antenna in both transmitting and receiving, and closer to the PC, sometimes avoiding the sound card altogether. But they all thrive on the same digital protocols and waveforms available to the basic SDR. That’s progress, embrace the new world. We move on, but watch this space for more new modulation waveforms, and for further SDR evolution.

In This Issue

Our QEX authors touch upon wide variety of Amateur Radio topics. These are at the top of the queue.

Riccardo Gionetti, IØFDH, describes an automatic tracking filter for a DDS generator.

Euclides Lourenço Chuma, PY2EAJ, describes a modern RF power meter with accuracy that rivals the best commercial RF power meters.

Charles Preston, K7TAA, uses WSPR (Weak Signal Propagation Reporter) software to facilitate reliable and accurate comparison of two HF transmitting antennas.

Marcus C. Walden reports findings in a 5 MHz experiment on HF near vertical incidence skywave propagation.

Scott Roleson, KC7CJ, describes a high-dynamic range broadband amplifier that enhances the usability of an SDR or any HF receiver.

Keep the full-length QEX articles flowing in, but if a full length article is not your aspiration, share a brief Technical Note that is perhaps several hundred words long plus a figure or two. Expand on another author’s work and add to the Amateur Radio institutional memory with your technical observation. Let us know that your submission is intended as a Note.

QEX is edited by Kazimierz “Kai” Siwiak, KE4PT, (ksiwiak@arrl.org) and is published bimonthly. QEX is a forum for the free exchange of ideas among communications experimenters. The content is driven by you, the reader and prospective author. The subscription rate (6 issues per year in the United States is $29. First Class delivery in the US is available at an annual rate of $40. For international subscribers, including those in Canada and Mexico, QEX can be delivered by airmail for $35 annually. Subscribe today at www.arrl.org/qex.

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