

QEX (ISSN: 0886-8093) is published bimonthly in January, March, May, July, September, and November by the American Radio Relay League, 225 Main St., Newington, CT 06111-1400. Periodicals postage paid at Hartford, CT and at additional mailing offices.

POSTMASTER: Send address changes to: QEX, 225 Main St., Newington, CT 06111-1400 Issue No. 331

Publisher American Radio Relay League

Kazimierz "Kai" Siwiak KF4PT Editor

Lori Weinberg, KB1EIB Assistant Editor

Scotty Cowling, WA2DFI Ray Mack, W5IFS Contributing Editors

Production Department

Becky R. Schoenfeld, W1BXY Publications Manager

Michelle Bloom, WB1ENT Production Supervisor

David Pingree, N1NAS Senior Technical Illustrator

Brian Washing Technical Illustrator

Advertising Information

Janet L. Rocco, W1JLR **Business Services** 860-594-0203 - Direct 800-243-7768 - ARRL 860-594-4285 - Fax

Circulation Department

Cathy Stepina QEX Circulation

Offices

225 Main St., Newington, CT 06111-1400 USA Telephone: 860-594-0200 Fax: 860-594-0259 (24-hour direct line) Email: qex@arrl.org

Subscription rate for 6 print issues:

In the US: \$29

as a member benefit.

US by First Class Mail: \$40; International and Canada by Airmail: \$35

ARRL members receive the digital edition of QEX

In order to ensure prompt delivery, we ask that you periodically check the address information on your mailing label. If you find any inaccuracies, please contact the Circulation Department immediately. Thank you for your assistance.



Copyright © 2022 by the American Radio Relay League Inc. For permission to quote or reprint material from QEX or any ARRL publication, send a written request including the issue date (or book title), article title, page numbers, and a description of where and how you intend to use the reprinted material. Send the request to permission@arrl.org

March/April 2022

About the Cover

Barry Chambers, G8AGN, explores the 30 THz band with his simple 30 THz receiver using a Melexis 90614 sensor, and thermally based transmissions. The sensor data, in the form of the sensor ambient temperature and the object temperature, is read using an Arduino Uno with the Adafruit 90614 sensor library. The received infrared signal strength provides an audio output, at a user-chosen constant frequency, when the measured apparent temperature of the distant heat source is greater than the sensor ambient temperature. The transmitter is modulated by switching it on and off as very slow Morse code CW (QRSS). This system has set the UK distance record for 30 THz at 65 m.



In This Issue

Perspectives

Kazimierz "Kai" Siwiak, KE4PT



30 THz — It's Radio, But Not As You Know It Barry Chambers, G8AGN

IONOS Simulator: An Open Source Ionospheric Simulator Rick Muething, KN6KB, Tom Lafleur, KA6IQA, and Tom Whitseside, N5TW

Upcoming Conferences



Compact Directional Low-Band Receiving Antenna Arlen Young, K6KZM



Self-Paced Essays — #10 Almost AC Eric P. Nichols, KL7AJ



Data TV — A Protocol for Embedding Data into **SSTV Transmissions** Brian Robert Callahan, AD2BA

Index of Advertisers

DX Engineering:	Cover III
Kenwood Communications:	Cover II
Phoenix Antenna Systems:	22

SteppIR Communication Systems: Cover IV Tucson Amateur Packet Radio:.....8