

The Enhanced WWVB Broadcast - History and Technical Background

WWV Amateur Radio Club presentation, May 28, 2026

Speaker: Dr. Oren Eliezer

Abstract:

This talk reviews the history and technical details of the enhanced WWVB time-code broadcast, which was introduced by NIST in 2012 to allow for more reliable reception of the station's broadcast throughout North America. It will include the background for the enhancement, the communication theory behind it, the speaker's personal experiences leading the engineering effort and interacting with NIST, the architecture of the receiver IC for the enhanced broadcast, photos from the station, and some entertaining stories.



NIST WWVB Broadcast Station, Fort Collins, Colorado



Speaker Bio:

[Oren Eliezer](#) received his bachelor's and master's degrees in electrical engineering from Tel-Aviv University in 1988 and 1997 specializing in communication systems, and his PhD in microelectronics from the University of Texas at Dallas in 2008.

He has authored and coauthored over 60 journal and conference papers and over 40 patents, has given over 60 invited talks and seminars, has served as an adjunct professor for electrical engineering, and has served on the organizing committees of several IEEE conferences.

He has over 3 decades of experience in the design and productization of communication systems and semiconductors in both large and entrepreneurial companies for applications ranging from defense and aerospace to consumer market products.

As Chief Technology Officer of startup company [EverSet Technologies](#), he led the definition of the enhanced WWVB broadcast and the design of the receiver IC for it over a decade ago.

He is currently a principal engineer developing ICs for wireless applications at Samsung Semiconductor in San Diego.



A brief history of WWV ARC

The WWV Amateur Radio Club formed in 2019 to help celebrate the 100th anniversary of the WWV callsign being assigned to the National Bureau of Standards (NBS), now the National Institute of Standards and Technology (NIST). The celebration on October 1, 2019, included a formal gathering of dignitaries, complete with a birthday cake, and talks given by amateurs that helped introduce NIST to the science that Amateur Radio was doing with the WWV broadcasts. Ham radio operators had the special event station WW0WWV callsign on the air for 5 continuous days with the help of over 100 amateur radio enthusiasts from around the country and logged more than 10k QSOs.

Covid reared its ugly head shortly after the 2019 celebration, and several of the organizers kept the club going and got the call on-the-air in 2020, and the club reorganized and became a 501(c)3 in early 2021. Our club activities have included many great talks from amateurs, scientists, and NIST officials, a yearly on-air observance of the October 1 WWV anniversary, frequency measurement practices, and this year a monthly operating event for club members we call 1stOnAir. Learn more about the WWV ARC by visiting our website: <https://wwwvarc.org>. You don't have to be a Ham to join the club!

The WWV ARC is not affiliated in any way with the National Institute of Standards and Technology (NIST). Our club is made up of metrology enthusiasts, especially those interested in time and frequency, most of them amateur radio operators, but that isn't necessary for membership.

The next WWV Amateur Radio Club general meeting is May 28, 2026, via Zoom @ 6pm MDT.

Dr. Oren Eliezer will be our guest speaker and will present about the enhanced WWVB broadcast and the development of the ES100 receiver IC for it.

The club meetings start informally at 5:30pm for anyone who likes to check in early for a rag chew. Sometime shortly after 6pm we get started with our formal meeting. Below is the Zoom info:

WWV ARC is inviting you to a scheduled Zoom meeting.

Topic: WWV ARC General Meeting with talk about the enhanced WWVB broadcast

Time: May 28, 2026 17:30 Mountain Time (US and Canada)

Every month on the Fourth Thu, until Oct 22, 2026, 6 occurrence(s)

Join Zoom Meeting

<https://us02web.zoom.us/j/88130574846?pwd=cHZLSXdMZWIzdC8vdWxwVzRWWUhZUT09>

Meeting chat link

<https://us02web.zoom.us/launch/jc/88130574846>

Meeting ID: 881 3057 4846

Passcode: 545965

One tap mobile

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Join by SIP

• 88130574846@zoomcrc.com

Join instructions

https://us02web.zoom.us/meetings/88130574846/invitations?signature=8uwTULi_Y3Q7oWM7Cy2nURZK-ANBdOgf8z-iopfUDoo