Frequency Measuring Test 2009 — FMT Classic

Budding metrologists take note: The FMT is coming!

BACKGROUND COURTESY KIM HAGAR

H. Ward Silver, NØAX

The Frequency Measuring Test has taken several different formats over the past few years. This year it returns to the "classic" FMT — measuring the frequency of an unmodulated carrier. Accurate frequency measurement is required of all hams for both regulatory compliance ("stay in the band!") and operating convenience, particularly on the new digital modes.

The basic techniques for making carrier frequency measurements are the same as described back in 2002. The FMT announcement for that year gave detailed instructions on how to make them. All previous "how-to" FMT announcements are available for download from **www.arrl.org/fmt**. This page also includes an FAQ (Frequently Asked Questions) list.

You don't need a basement full of sophisticated lab equipment to make a surprisingly accurate measurement. The frequency accuracy of most radios sold in the past decade is specified as ±10 ppm or better. By calibrating your radio to a known frequency reference such as WWV (**www.boulder.nist.gov/timefreq/stations/wwv.html**) or CHU (**www.nrc-cnrc.gc.ca/eng/services/inms/time-services/short-wave.html**) and letting it reach an even, stable temperature, your measurements can be within 1 ppm or even better! (The 2006 FMT announcement includes a sidebar on calibrating your receiver to an over-the-air frequency reference.)

Schedule

The W1AW FMT will run on November 12, 2009 at 0245Z (this is Wednesday evening, November 11, 2009 at 9:45 PM EST). It will replace any W1AW bulletin normally scheduled for that time. It is recommended that participants listen to W1AW's transmissions prior to the event to get an idea of conditions to see which band (or bands) will be best for measurement purposes.

Frequency Measuring Test Update

Watch the FMT home page (**www.arrl.org/w1aw/fmt**) for changes. We are trying to add more stations to improve coverage of the signals. This may result in changes to the transmission schedule and format.

A Club Project?

The regular FMTs make a great club project to demonstrate basic frequency measuring techniques. Hams who might not feel comfortable making measurements on their own can get some hands-on FMT Elmering. *QST* featured the WØBLK club FMT story in the 2007 FMT Announcement as an example of what you can do.

Format and Schedule

The FMT will begin with a general W1AW (QST) call beginning exactly at 0245Z sent simultaneously on two amateur frequencies. The test will consist of 20 second key-down transmissions, followed by a series of Vs, followed by station identification. W1AW will identify before, during and after the transmissions. The test will last for a period of approximately 5 minutes total. The approximate frequencies for the carriers will be:

80 meters 3597 kHz ■ 40 meters 7097 kHz

Thanks to volunteer Mike Fahmie, WA6ZTY, a 40 meter-only West Coast run will follow the W1AW transmissions by 15 minutes, beginning at 0300Z and following the same format as W1AW. The approximate frequency will be 7096 kHz. (See the sidebar about possible changes to the FMT.)

Reporting and Results

Your report should be submitted via the FMT Report form on the FMT Reporting and FMT Results Web site, **www.b4h.net/fmt/index.php**, no later than 2359Z on November 15. Along with your call sign and e-mail address, enter your most accurate frequency measurements on each band and indicate whether you measured the W1AW or WA6ZTY signal. There will be a window to list your equipment, describe the method you used to make the measurements and enter any Soapbox comments. After the entry page has been closed, the Web site will then automatically calculate the measurement error of each report and display the actual transmission frequencies. The information entered by each reporting station will also be displayed as in previous FMTs. (You can read the results for recent FMTs on the W1AW FMT page.) QST

Resolution, Accuracy and Stability

- Resolution is the smallest difference in frequency that can be displayed or measured.
- Accuracy is a measure of how close the displayed frequency displayed is to the actual frequency.
- Stability is the ability to remain at a specific frequency over time.

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