

WWV (radio station) Fort Collins Colorado - Standard Time and Frequency Signals



WWV Transmitter Building

WWV is the call sign of the United States National Institute of Standards and Technology's (NIST) radio station in Fort Collins, Colorado. WWV continuously transmits official U.S. Government frequency and time signals on 2.5, 5, 10, 15 and 20 MHz. These carrier frequencies and time signals are controlled by local atomic clocks traceable to NIST's primary standard in Boulder, Colorado by GPS common view observations and other methods. NIST also operates the very similar radio station WWVH in Kauai, Hawaii. WWV and WWVH make recorded announcements; since they share frequencies, WWV uses a male voice to distinguish itself from WWVH, which uses a female voice. They also make other recorded announcements of general interest, e.g., the GPS satellite constellation status and severe oceanic weather warnings. WWV shares its Fort Collins site with radio station WWVB that transmits carrier and time code (no voice) on 60 kHz in the low frequency (LF) band for Atomic clocks.

Standard frequency signals

WWV broadcasts on 2.5, 5, 10, 15 and 20 MHz and these frequencies are accurate at the transmitter to 1 part in a billion. When received through the air this accuracy may be degraded to 1 part in 100 million or +/- .1 cycles

These standard frequencies can be used to closely calibrate radio receivers and other electronic equipment.

In addition to the standard carrier frequencies, WWV carries additional information using standard double-sideband amplitude modulation. WWV's transmissions follow a regular pattern repeating each minute. They are coordinated with its sister station WWVH to limit interference between them.

WWV/WWVH minute format		
Second	WWV	WWVH
0–1	Minute beep (0.8 s)	
1–45	Standard tone or voice announcement	
45–52.5	Silence (except tick)	Voice time announcement
52.5–60	Voice time announcement	Silence (except tick)

Time announcements

WWV transmits the exact time of day in two separate ways: English-language voice announcements and a Binary time code, which also gives the date. The transmitted time is given in Coordinated Universal Time (UTC).

Voice announcements are made at the end of every minute, giving the time of the following minute beep. The format is, "At the tone, X hours, Y minute(s), Coordinated Universal Time." The WWV announcement is in a male voice and begins 7.5 seconds before the minute tone. WWVH makes an identical time announcement, starting 15 seconds before the minute tone, in a female voice.

WWV and WWVH transmit 44 seconds of audio tone in most minutes. On even minutes (except for minute 2) WWV transmit 500 Hz, while 600 Hz is heard during odd minutes. WWVH tones are reversed to WWV

WWV/WWVH hourly schedule^[12]

Second ticks are transmitted over top of signals listed here.

Minute	WWV	WWVH	Minute	WWV	WWVH	Minute	WWV	WWVH
00	Station identification	Silence	20	500 Hz	600 Hz	40	500 Hz	600 Hz
01	600 Hz	440 Hz	21	600 Hz	500 Hz	41	600 Hz	500 Hz

(Format continues until minute 59 of hour then repeats)

WWV broadcasts its signal on five transmitters, one per frequency. The transmitters for 2.5 MHz and 20 MHz put out an ERP of 2.5 kW, while those for the other three frequencies use 10 kW ERP.



WWV's 15 MHz antenna

WWV identifies itself twice each hour, at 0 and 30 minutes past the hour as follows:

“ National Institute of Standards and Technology time: this is Radio Station WWV, Fort Collins Colorado, broadcasting on internationally allocated standard carrier frequencies of two-point-five, five, ten, fifteen, and twenty megahertz, providing time of day, standard time interval, and other related information. Inquiries regarding these transmissions may be directed to the National Institute of Standards and Technology, Radio Station WWV, 2000 East County Road 58, Fort Collins, Colorado, 80524. ”

WWV accepts reception reports sent to the address mentioned in the station ID, and responds with QSL cards.

WWV's time signals can also be accessed by telephone by calling +1-303-499-7111 or 1+808-335-4363 for WWVH. Telephone calls are limited to two minutes in length,

For more info see <http://www.nist.gov/pml/div688/grp40/www.cfm> or www.wikipedia.org/