

The Clock behind Your Cell Phone

For many Americans carrying a cell phone has replaced the need for wearing a wrist watch. If you need to know what time it is, just flip open your cell phone. But have you ever wondered how your cell phone knows what the correct time is? The sophisticated technology behind the time in your cell phone is the atomic clock. Atomic clocks allow for precise



synchronization of timing across the earth and into space that powers the Internet, GPS devices and all satellite communications. Atomic clocks for home and office use receive signals from the U.S. Atomic Clock and automatically set the correct time, date, and year.

The atomic clock was made possible by research performed during the 1930s and 1940s to improve radio communications for the U.S. military during World War II. In 1949, the U.S. National Bureau of Standards (now called the National Institute of Standards and Technology) announced the world's first atomic clock. Throughout the 1950s and 1960s the National Bureau of Standards regularly replaced and advanced the models of atomic clocks regulating time in the United States. The standard atomic clock for the United States called NIST-F1 (pictured thanks to www.tf.nist.gov) was introduced in 1991 is accurate to 1 second every 20 million years.

Besides the U.S. standards, world time is standardized by 80 atomic clocks that are scattered across 24 countries. Coordinated Universal Time, as this standardization is called, is maintained by the Bureau International de l'Heure (International Bureau of Time) in Paris, France.