

## Time Notation for Amateur Radio

Amateur Radio operators have two ways of showing time, and which method they use depends upon whether they are communicating with other operators within the same time zone, or with operators in different time zones.

In either case, you will often see time expressed in the 24 hour format used by the military and in Europe and elsewhere, such as 0900 instead of 9:00AM. After 12:59PM (1259), 1:00PM would be called 1300, 2:00PM would be 1400, etc., up to 11:59PM, which would be called 2359. At midnight, the time would be referred to as 2400 of that day, with the following minute being 0001 the following day. The 24 hour system absolutely eliminates any confusion that could result from a failure to specify AM or PM.

Sometimes you will see, for example, "0900PM." Not only is this confusing, it's just wrong. The lack of the colon between the hours and the minutes specifies that the 24 hour system of denoting time is being used. Correctly, it should therefore be either 2100 or 9:00PM. Likewise, "0900AM" and "1400PM" are redundant, because, again, the 24 hour system of time notation automatically tells you whether the time in question is AM or PM.

When referring to an event between local operators, local time is often used, typically in the 24 hour format. To prevent possible confusion, the letter "L" should be added at the end, so 9:00AM local time would be written as 0900L. Sometimes, you will hear hams say this as "zero nine hundred lima," the "lima" being the international phonetic for the letter "L." (See the "International Phonetics" page for a complete listing of these.) "Lima time" is the time wherever you happen to be, and includes daylight savings hour corrections if they are in effect.

Of course, when the timekeeping situation involves people who are in different time zones, the issue of local time becomes problematic. Whose "local time" should be the standard? It is therefore generally agreed that the international standard time will be the time of the Royal Observatory in Greenwich [pronounced "GRENitch"], England.

The reason why an observatory in England should be the standard for international timekeeping most likely goes back to the era when "Britannia ruled the waves." (Ocean waves, that is, not radio waves!) British navigators determined their longitude by comparing their ship chronometer's time, which had been set to the time at the Royal Observatory, with local noon, determined by the sextant. The difference between the two would be your longitude, since the Royal Observatory was defined as zero degrees longitude. Each hour of difference represents fifteen degrees of longitude. Combine with that the angle of the sun above the horizon at local noon, and you have both longitude and latitude and, therefore, your position on the Earth's surface.

There are several ways of notation that you will see to refer to Royal Observatory time. The oldest is "GMT," which is an abbreviation for "Greenwich Mean Time." Nowadays, Royal Observatory time is often denoted as "UTC," an abbreviation for "Universal Time, Coordinated." (Personally, I thought GMT was more than adequately descriptive, but nobody asked me.)

Another way of designating Royal Observatory time is by adding the letter "Z" to it, such as 2200Z. This indicates a time of 10:00PM, Royal Observatory time. Hams will often call this "twenty two hundred zulu," the "zulu" being the international phonetic for the letter "Z." The "Z" is actually an abbreviation for the German word "zeit\*," which means "time" in English. So "GMT," "UTC," "Z" and "zulu" are all valid ways, either spoken or written, of denoting Royal Observatory time.

So, what is the relation between our local ("Lima") time and Zulu time? Given that "local time"

for us is either Eastern Standard Time or Eastern Daylight Time, you would add either five hours to EST, or four hours to EDT, to obtain Zulu time; or subtract either five hours from from Zulu time to obtain EST, or four hours from Zulu time to obtain EDT. So, for example, 1200L (noon) would be 1700Z if local time happened to be Eastern Standard Time, or 1600Z if we were on Eastern Daylight Time. And 1200Z would be 0700L (EST) or 0800L (EDT). Simple, isn't it?

One cautionary note: Be careful converting to and from Zulu time if it's very late in the evening "here" or early in the morning "there." 2100L (EST) would become 0200Z of the following day. Likewise, 0001Z would become 2001L (EDT) the day before. You will be very frustrated if you miss a schedule or a contest because of this, but be happy anyway if you do, because it's always five o'clock somewhere.

---

\*Irrelevant Freebie: the German expression "*zeitgeist*" is a combination of "*zeit*" for "time" plus "*geist*" for "ghost" (or "spirit"), therefore meaning "the spirit of the times." Isn't it interesting what you can learn through Amateur Radio?