



## It Seems to Us

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# Secondary: What Does It Mean?

“Most of the radio spectrum access that we amateurs have between 420 MHz and 24 GHz is on a secondary basis. Up to now our secondary status has not imposed many constraints, but that is changing.”

The history of the amateur UHF and microwave allocations is very interesting but cannot be told on one page. Briefly, before World War Two the frequency allocations to radio services in the United States did not go above 300 MHz. Radio technology took great leaps forward during the war, and at the 1947 Atlantic City Radio Conferences the international allocations were extended all the way up to 10.5 GHz. The band limits between 420 MHz and 10.5 GHz that were allocated to the amateur service at that time are quite similar to what we have today, the main differences being the addition of 902-928 MHz and the withdrawal of 1215-1240 MHz at the 1979 World Administrative Radio Conference (WARC) along with the reallocation of 2310-2390 MHz to other services on a domestic basis.

A lot has changed since 1947, not least the utilization of the radio spectrum in this frequency range. The first big change affecting radio amateurs occurred in 1958, when the Cold War and the advent of the Space Age propelled national defense to the top of the priority list. The amateur allocations were maintained (with a temporary shift of the 3300-3500 MHz band up by 200 MHz) but with the requirement that the government radiopositioning service (i.e. military radars) be protected from harmful interference. This was confirmed at the 1959 WARC where the amateur allocations in this range were made secondary, with radiolocation primary.

The Radio Regulations of the International Telecommunication Union (ITU) state that a secondary service “shall not cause harmful interference to stations of primary services” and “cannot claim protection from harmful interference from stations of a primary service.” The same provisions are contained in the FCC Rules. Cohabiting with military radar can be uncomfortable at times and in some places, but in general we have been able to coexist for more than a half-century without a great deal of difficulty. After all, military radars must be able to function in an environment far more hostile than that created by the presence of a few amateur signals. Recently, however, we have begun to encounter new challenges.

About five years ago, upgrades to the Pave Paws radar at Beale Air Force Base near Sacramento resulted in new constraints on amateur operations in the vicinity. Apparently the cumulative effect of many signals from hilltop repeaters is enough to cause problems at the Beale installation, which among other things is used to track orbiting space debris. Similar issues have arisen at a Pave Paws installation on Cape Cod but have been somewhat easier to resolve.

A few months ago the Federal Aviation Administration (FAA) began installing a new generation of Common Air Route Surveillance Radars (CARSRs) that operate in the 1240-1350 MHz band. Aeronautical radionavigation is one of several primary services in the 1240-1300 MHz (23 cm) band that the amateur service must protect. We have been coexisting with aeronautical radionavigation for many years but it soon developed that amateur stations, particularly repeaters,

operating on or near a CARSR frequency can cause harmful interference to the new system. The first case that has come to our attention involves an installation near Los Angeles, which happens to be a hotbed of 23 cm activity. Several dozen additional locations are or will be affected in the coming months. The ARRL is in touch with the FAA and will work with its engineers to limit the constraints on amateur operation as much as possible, consistent with aviation safety.

On this page in June 1993 *QST* we referred to 902-928 MHz (33 cm) as “The Kitchen-Sink Band.” It earned the designation because of the FCC’s inclination to shove “everything but the kitchen sink” into a band that in 1947 had been designated for Industrial, Scientific, and Medical (ISM) use in the Americas. We were able to gain access to the band on a secondary basis at the 1979 WARC because its ISM status made it unattractive to most other services. Unfortunately, spectrum access being a scarce commodity, others soon warmed up to the band and when it was finally opened up for amateur use in 1985 we were required to protect automatic vehicle monitoring (AVM) systems, among other services, from interference. In 1993 the FCC proposed expanding AVM into a new “location and monitoring service” (LMS) and ultimately did so, but with the interesting proviso that some LMS licenses are “conditioned upon the licensee’s ability to demonstrate through actual field tests that their systems do not cause unacceptable levels of interference to 47 CFR part 15 devices.” This is the reverse of the usual situation in which Part 15 devices are at the bottom of the pecking order. LMS has had its ups and downs, but recently a potential market has been identified for providing precise location information in places where GPS is either unreliable or not sufficiently precise. If this service becomes commercially viable it will pose some new challenges for amateurs in a band that is already impacted by other users.

Secondary status does have a couple of advantages. Our partnership with the military has helped fend off commercial pressures; we have retained access to wider bands than would be the case if we were all alone, and primary. If the amateur-satellite allocations in this frequency range were on a primary basis they would be subject to power flux density limits that probably would preclude the use of simple earth stations. However, the pressure on this part of the radio spectrum is increasingly intense as mobile broadband applications become regarded as essential to daily life.

We can’t turn the clock back to 1958, but the ARRL will do everything it can to defend the amateur allocations. We always have. We always will.

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