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Two New Bands?

“ Amateur Radio’s roots are in experimentation. Soon we should have new opportunities to apply the latest signal processing technologies to a part of the radio spectrum that for a century has been off limits to us.”

In his classic work *Two Hundred Meters and Down* published in 1936 Clinton B. DeSoto tells the story of how, by legislation adopted in 1912, it came to be that radio amateurs were relegated to wavelengths of 200 meters or less — in modern terms, frequencies of 1500 kHz or more. In those days the conventional wisdom was that the effectiveness of radio waves increased in proportion to their wavelength — that is, the longer the wavelength the farther the signal would travel. That was true for groundwave propagation, but as amateurs would soon demonstrate it was not the case once the ionosphere was brought into play.

Imagine the difficulties faced by the commercial radio engineers of that day. They were under pressure to use ever longer wavelengths, requiring massive antennas and high powered transmitters to overcome the natural noise and manmade interference that plagued — and still plagues — the spectrum below, in terms of frequency, what is now the AM broadcast band. And the lower in frequency they went, the more diminished were the available bandwidth and the opportunities for frequency reuse through geographic separation.

Being consigned to the “useless” shorter wavelengths turned out to be a blessing for amateurs rather than the intended curse. Today it is not an idle boast to say that the largest body of practical knowledge about ionospheric radio propagation resides in the Amateur Radio Service. The same is true of tropospheric ducting at VHF and higher, as we touched on here last month. But we have never had the opportunity to explore the longer wavelengths.

It hasn’t been for lack of trying. The ARRL’s preparations for the 1979 World Administrative Radio Conference included a serious effort to secure an international allocation of 160-190 kHz. The effort fell victim to objections from electric power utilities that used, and still use, frequencies below 490 kHz for Power Line Carrier (PLC) operations on high voltage transmission lines. In the 1990s several European countries began to allow amateurs to experiment in the band 135.7-137.8 kHz, a practice that became the basis for a CEPT Recommendation in 1997. So in 1998 we tried for a domestic low frequency (LF, below 300 kHz) allocation. At first it looked promising, and in 2002 the FCC went so far as to issue a Notice of Proposed Rule Making for a secondary amateur allocation of 135.7-137.8 kHz. Unfortunately, a year later the Commission decided not to adopt its own proposal, citing generalized but technically unsubstantiated concerns about possible PLC interference from the Utilities Telecom Council (UTC, an industry group) and a committee of the IEEE.

The 2003 World Radiocommunication Conference (WRC) put this band on the agenda for consideration of a possible amateur secondary allocation at the next WRC, and in 2007 it finally became a reality in the international Table of Frequency Allocations. The ARRL did not immediately press for domestic implementation; we knew UTC would offer its usual objections and we wanted to be prepared to meet them. Also, WRC-07 had put another possibility before us: a secondary allocation of up to

15 kHz somewhere in the band 415-526.5 kHz (in the medium frequency, or MF range) was on the agenda for what eventually became WRC-12. There was more interest in this band among amateurs in the US, so during domestic preparations for WRC-12 we did not want to complicate that issue. The story of how an allocation of 472-479 kHz in the international Table came about was told in April and May 2012 *QST*.

Since then, two things have happened that move new amateur LF and MF allocations closer to reality in the United States. In November 2012 the FCC released a comprehensive 130 page document addressing various implementation issues arising from WRC-07, including the 135.7-137.8 kHz amateur allocation. That proceeding, known as ET Docket No. 12-338, is now open for public comment. The document can be found on the ARRL website at www.arrrl.org/fcc-documents. The sections of greatest interest to radio amateurs are paragraphs 13-19 and paragraphs 20-24, the latter dealing with a proposed upgrade of the amateur allocation at 1900-2000 kHz, i.e. the top half of the 160 meter band.

Also in November, the ARRL submitted a Petition for Rulemaking to the FCC seeking implementation of the 472-479 kHz allocation. We did so only after determining that there is no reasonable basis for an objection from UTC, since there is very little if any use of frequencies above 450 kHz for PLC. Until the petition is assigned an RM number comments are not in order, but we are hopeful that this step will be taken soon. In the meantime you can read the petition at www.arrrl.org/fcc-documents. (An FCC notation on the petition suggests that it was erroneously assigned to the Media Bureau, but that will be straightened out in due course.)

It is important to note that the FCC has not actually proposed an amateur allocation at 135.7-137.8 kHz. Without labeling it as such, the Commission in effect has opened a Notice of Inquiry seeking comment on the pros and cons of such an allocation and how it might be made compatible with PLC systems. At paragraph 17 the Commission says, “...we would only consider adding an amateur allocation if we were comfortable that amateur radio and utility PLC systems could successfully co-exist in the band.” While that puts a burden on us of demonstrating to the Commission’s satisfaction that co-existence is possible without endangering the reliability and security of the power grid, the Commission clearly expects more from UTC than “It can’t be done.”

FCC proceedings tend to take a long time and these two will be no exception, but it is encouraging to see some progress toward our being able to explore new spectrum territory — or very old territory, if you prefer to look at it that way.