

-C.A.Pennell comment to FCC question 1. e. follows.

A specific change that could enhance amateur's ability to support emergency and disaster response is to eliminate (in Subpart D) all of §97.307(f)(3). Because it has become an impediment to modern emergency communications by amateur radio, I suggest now eliminating the archaic Subpart D rule, §97.307(f)(3). Particularly, eliminate that "The symbol rate must not exceed 300 bauds" clause.

-C.A.Pennell comment to FCC question 1.h. follows.

Yes, there are technical restrictions with regard to transmission speeds that, if removed, would increase the ability of operators to support emergency/disaster response, in Subpart D §97.307(f)(3). No issues could arise from simply removing the "symbol rate must not exceed 300 bauds" restriction.

-C.A.Pennell comment to FCC question 2. f. follows.

Use of faster PACTOR-4 mode on HF amateur radio frequencies in the USA is being obstructed by (in Subpart D) §97.307(f)(3).

PACTOR-4 reference info: <http://www.p4dragon.com/en/PACTOR-4.html>

The §97.307(f)(3) symbol rate limit on HF was placed into Part 97 to contain older digital modes that are no longer in favor. The more modern modes do not completely respond to the notion that the "symbol rate" in symbols per second is directly related to bandwidth. Today the more modern data modes, including our own government's, are capable of much more accurate and reliable transmissions with much less bandwidth. The modes used today were not even imagined when this rule was written.

For an example:

MODE	SYMBOL RATE	BANDWIDTH	SPEED	LEGAL
Pactor 1	200 baud	450 Hz	200 bps max	YES
Pactor 3	100 baud	2400 Hz	3600 bps max	YES
Pactor 4	1800 baud	2400 Hz	5800 bps max	NO
US gov't STANAG	2400 baud	2400-3000Hz	2400-9600max	NO

As illustrated above, the first two data transmission modes are the only legal modes. However, notice that the Pactor 4 mode, which exceeds the 300 baud allowable symbol rate, is the exact same bandwidth of the legally accepted Pactor 3 mode.

Notice also that the first mode, Pactor 1, has a symbol rate of twice that contained in Pactor 3, but only a small portion of the bandwidth, and a speed that is impractical for use in modern emergency communications.

Notice that none of these protocols are any wider than a normal SSB voice signal on the Amateur Spectrum. Most occupy less spectrum.

If the symbol rate is allowed to go up as technology and either new modes or mode modifications (e.g. Pactor 4) allow, then the amount of time a specific connection could possibly interfere with or prevent another contact would be reduced, thus allowing for a higher number of contacts and reducing interference. Higher symbol rates equals shorter transmission time for a given message; hence less opportunity for interference.

Elimination of this antiquated rule is a necessity if Amateur radio is to perform optimally to assist Public Safety and others in providing communications for complex messaging. Again, this rule keeps the Amateur from using our own country's standard protocols as well as discouraging the manufacturing of more robust data protocols.