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## **Rackley/Dawson Propose Deep-Sixing The “Ratchet Rule”**

*Harry Cole*  
*cole@fhhlaw.com*  
*703-812-0483*

Our friends Ron Rackley and Ben Dawson – high magnitude stars in the constellation of consulting engineers – have filed a petition for rule making on behalf of their firms (du Treil, Lundin & Rackley, Inc., and Hatfield & Dawson, respectively) proposing a significant change in the AM allotment rules (specifically, Footnote 1 of Section 73.182(q)). Anyone interested in AM matters should take a look at it and be prepared to throw in his/her two cents’ worth at the Commission when the opportunity arises.

The petition is not for the AM neophyte. Here’s a quick test designed to help you figure out whether you need to read on. Read the following “simple example” – seriously, they say that this is a “simple example” – taken verbatim from the petition, and try to answer the question we pose below:

Station A [i]s a 5.0 kilowatt station on 1000 kilohertz with a quarterwave nondirectional antenna and a nighttime interference free level of 3.0 mV/M and Station B [i]s a 5.0 kilowatt co-channel station located some distance away that has a nighttime interference-free RSS of 13.0 mV/m including a single limit from Station A of 8.3 mV/m. The Station B antenna was designed to have a null in its vertical radiation pattern protecting Station A, but Station A was there first and does not protect Station B. Both stations have 5 mS/m ground conductivity within their coverage area. If Station A makes a transmitter site change subject to the “ratchet clause” [*i.e.*, Section 73.182(q), Footnote 1] and is required to reduce its interference contribution by 10%, the single limit from station A will decrease from 8.3 mV/m to 7.5 mV/m and the nighttime interference-free RSS at Station B will decrease from 13.0 mV/m to 12.5 mV/m.

Our question: Say what now?

The focus of the petition is the “ratchet rule”, a provision adopted in the early 1990s as part of an effort to reduce interference in the AM band. As we all know, unlike FM and TV, at night AM signals bounce off the ionosphere and come back to earth far away from

the transmitter. (Apparently this doesn't happen during the day because the sun burns off the otherwise reflective ionospheric layer enough to let the AM signals pass through into outer space.) This leads to hellacious problems with nighttime interference, since the bounce (known as the skip effect to the *cognoscenti*) tends to be somewhat unpredictable. (In fact, the calculations are possible only statistically.) To deal with those problems, the Commission over the years devised a very complicated (to us non-engineers, at least) set of standards designed to limit the maximum nighttime interference stations could expect to encounter.

But since those rules could seek only to limit, not prevent, nighttime interference, the grim fact was that such interference remained ever-present.

The ratchet rule was intended to induce reduction of interference by making improvement in a Class A or B station's contribution to potential interference a condition to changes in that station's facilities. In other words, if you're a Class A or B AM station and you want to modify your facilities, the ratchet rule requires that your proposal result in a reduction of your contribution to any significant nighttime interference levels.

A nice idea in theory. In practice, however (as Messrs. Rackley and Dawson illustrate in their petition), the ratchet rule tends to discourage service improvements even when those improvements would appear to far outweigh any potential reduction in nighttime interference that might be achieved through the ratchet rule. Moreover, the stations most likely to be constrained by the ratchet rule tend (again according to Messrs. Rackley and Dawson) to be older stations which originally weren't causing any interference problems to begin with. And ironically, the stations to which interference would be reduced are newer stations which had agreed to accept the existing level of interference from the get-go.

It appears from the petition that elimination of the ratchet rule would make life considerably better for a number of AM stations. We can't say for sure – to paraphrase Dr. Leonard "Bones" McCoy, "Damn it, Jim, I'm a lawyer, not an engineer" – but if you have an interest in AM allocations, you should probably take a look at the petition to see how it might affect you. The Commission has called for an initial round of comments on the proposal. Due date: October 9.