

## COMMENT ON THE "PRE-BAKED" INSIDE RADIO STORY (KATY VS. KRTH)

With respect to the More Stories entry, "Engineers: KATY pre-baked with interference" (see <http://www.insideradio.com//Article.asp?id=1815245&spid=32061>), I'd like to share some observations.

I note that some unnamed engineers have commented on the Petition that I have filed with the FCC, seeking relief from IBOC interference that station KRTH(FM), Channel 266B+, Los Angeles, California is causing to my client's station KATY-FM, Channel 267A, Idyllwild, California. The unnamed engineers believe that this problem is another negative outcome of the hundreds of Class A signals dropped onto the dial 20 years ago as part of Docket 80-90. According to these engineers, when Class A KATY-FM was dropped into the crowded southern California market in 1988 - and built three years later - it elected to receive interference from grandfathered super-powered Class B KRTH - on the air since 1941. In fact, these engineers say KATY-FM actually steps on KRTH's signal by using Class B spacing rules rather than protecting KRTH."

One of these engineers reportedly said, ""The Commission should tell [my client, All Pro Broadcasting, Inc.] to take it as it is, or, become fully compliant in protecting KRTH, which would likely require them to sign it off the air." This engineer also reportedly thinks that the recently approval general HD Radio power hike is actually helping KATY-FM, because KRTH will likely never be able to get the FCC's approval to boost its output. Great for All Pro, the engineer reportedly says, but not for the millions living in L.A. who'll have a tougher time hearing K-Earth.

First of all, I would like to direct readers' attention to Issue No. 1011 of \*The CGC Communicator\*, published by Communications General Corporation, and available on-line at <http://www.bext.com/CGC/2010/>

[cgc1011.htm](http://cgc1011.htm) . That issue contains an Editorial by Robert F. Gonsett, the Editor of The CGC Communicator and a principal of Communications General Corporation. Mr. Gonsett's Editorial succinctly sets forth the salient technical facts concerning Station KRTH's facilities and the distance between the two stations. (Note: I do not represent, and have never represented, either Mr. Gonsett or CGC.)

Station KRTH is a grandfathered, superpowered facility. It actually has greater parameters than a full Class C station would have, notwithstanding the fact that the FCC does not allow Class C facilities in Zone I-A (roughly the southern four-fifths of California, [http://en.wikipedia.org/wiki/File:US\\_FM\\_broadcast\\_zones.png](http://en.wikipedia.org/wiki/File:US_FM_broadcast_zones.png) ). KRTH possesses those facilities simply because it was authorized a very long time ago, considerably before the Commission imposed the current limits on power and antenna height. Those limits appear in § 73.211(b) of the FCC's Rules.

Per § 73.211(c) of the rules, Station KRTH is entitled to keep those facilities, so long as it does not change its transmitter site. However, the station is only protected to the same degree as a normal maximum-parameter Class B station. Station KRTH is not unique in this regard. Any station, whether it is grandfathered or not, is protected only to the extent provided by the Commission's spacing rule, § 73.207, and the Commission's contour-protection rule, § 73.215. Section 73.209 is most explicit in this regard.

Therefore, the unnamed engineer's supposition that the FCC might tell KATY-FM to protect Station KRTH's 0.5-mV/m (54-dB $\mu$ ) contour, or go off the air, is, as a matter of law, ill-founded. Station KATY-FM is more than fully spaced to Station KRTH(FM), and therefore presently protects Station KRTH(FM) to even a greater degree than the FCC Rules require. The spacing that § 73.207(b) requires is 113 km. The actual distance between the two Stations is 134 km. There is thus 21 km of excess

spacing between the two stations, relative to the legally required minimum.

Furthermore, even were the FCC to adopt the radical departure from its FM licensing structure that this unnamed engineer suggests -- and I cannot imagine the FCC doing so -- legally, the Commission could only do so by issuing an Order to Show Cause to Station KATY-FM. All Pro, the licensee, would be entitled to a full evidentiary hearing, and surely would vigorously contest the Order, and would demand a full hearing.

Many other stations could ultimately be affected were the FCC to take such an unprecedented action. The ramifications would extend far beyond Station KATY-FM. For example, any other grandfathered, superpowered facility could demand similar treatment, because it is a fundamental principle of Communications Law that the Commission must treat similarly situated parties similarly, or provide a rational explanation for disparate treatment. This is the "Melody Music" principle, which derives its name from a 1965 decision of the U.S. Court of Appeals for the D.C. Circuit (*Melody Music, Inc. v. FCC*, 345 F.2d 730). And not just grandfathered, superpowered stations could demand, "Me, too!"....

-- any previously authorized station with normal power and height for its Class and that is the subject of a grandfathered short spacing could demand that the FCC force later-authorized stations to provide full protection to their actual contours. This would wreak havoc in certain parts of the country, particularly New England and the Middle Atlantic States, the Midwest, Southern California, and certain parts of the South.

-- stations that became short-spaced by virtue of waivers of short spacings granted to others could insist on new and greater protection. Were the FCC to act as the engineer suggests, the Commission would truly be opening Pandora's Box.

Given Station KRTH(FM)'s very great, grandfathered parameters, it is certainly to be expected that Station KRTH's analog facilities cause a certain amount of interference to Station KATY-FM, even within Station KATY's 1-mV/m (60-dB $\mu$ ) contour. It is also to be expected that the amount of interference that Station KRTH's analog facilities cause to Station KATY-FM is greater than would be the case if Station KRTH were licensed with normal Class B maximum parameters. That, however, is irrelevant to the issue that I have raised in All Pro's Petition.

The interference that the analog Station KRTH facilities are causing to Station KATY-FM is one thing. The extent to which KRTH-HD is causing \*new\* interference to Station KATY-FM, and Station KATY-FM's entitlement to protection from that new interference, are something else entirely. It is this \*new\* interference that is the subject of All Pro's Petition.

The center frequencies of Station KRTH's and Station KATY-FM's analog carriers are 0.2 MHz (200 kHz) apart. During normal analog operation, the carrier will swing symmetrically, above and below -- and centered on -- the center frequency. This frequency swing is called the \*frequency deviation.\*

Per § 73.1570(b)(2), the frequency deviation is normally limited to 75 kHz above the center frequency, and 75 kHz below the center frequency. Under certain conditions, § 73.1570(b)(2)(ii) allows for a peak deviation of 82.5 kHz. Per § 73.319 of the Rules, multiplex subcarriers and their significant sidebands -- the extra signals used to transmit stereo information, reading services for the blind, RDS (Radio Data System) information, and the like, must be within 99 kHz, referenced to the center frequency.

Because the center carrier frequencies of first-adjacent-channel analog stations are spaced 200 kHz apart, under normal analog operations, Station KRTH(FM)'s analog signal, even at its maximum carrier swing,

will not inject radio energy into the space on the dial occupied by Station KATY-FM's analog carrier and its sidebands. Likewise, Station KATY-FM, even at its maximum carrier swing, will not inject radio energy into the space on the dial occupied by Station KRTH's analog carrier and sidebands. In other words, the swinging analog carriers of Stations KRTH and KATY-FM would never collide, nor would they ever overshoot each other.

For those interested in the numbers, they work out as follows. In the case of KRTH, the analog carrier swings from 101.025 MHz to 101.175 kHz. In the case of KATY-FM, the analog carrier swings from 101.225 MHz to 101.375 kHz. There will be at least 50 kHz of margin between the two carriers, even when the KRTH carrier reaches its peak upward extreme and the KATY-FM carrier simultaneously reaches its peak downward extreme (the worst case).

Furthermore, FM receivers are, to a certain degree, able to ignore radio energy on the adjacent channel. (The degree to which a receiver can ignore energy on the adjacent channel will vary with the particular model.) Therefore, the interference that Station KRTH(FM) will cause to Station KATY-FM will be limited to a certain level, and the interference that Station KATY-FM will cause to Station KRTH(FM) will also be limited to a certain level.

All of this goes out the window when one station or the other commences digital transmissions. To minimize self-interference (interference by the digital signal to the parent analog station, and vice versa), the digital signal is placed beyond the carrier swing of the parent analog station. In the case of KRTH, this means that the Upper Digital Sideband occupies much of the same spectrum space that the KATY-FM analog signal does. (Specifically, the KRTH Upper Digital Sideband extends from 101.229 MHz to 101.298 MHz.. this is almost the entire space between the lower extreme of the KATY-FM lower carrier swing and the KATY-FM carrier's center frequency.)

What's more, the spectral characteristics of the KRTH-HD Upper Digital Sideband are significantly different from the KRTH analog signal. The analog signal's spectral distribution varies with the modulation according to what in mathematics is called a Bessel function. The spectral profile can vary significantly from one instant to the next. In the case of the KRTH-HD Upper Digital Sideband, the spectral profile is much more constant. It essentially looks like broadband noise.

For all of these reasons, the KRTH-Analog-to-KATY-FM interference and the KRTH-Digital-to-KATY-FM interference are apples and oranges. The apples have been around a long time, and they are the fruit of the preexisting allocations structure into which the Commission fitted KATY-FM. The oranges are completely new, and they are particularly bitter fruit.

Whatever benefit may flow from the new service that KRTH-Digital represents, it cannot be at the cost of new interference to Station KATY-FM. As the FCC has previously observed in an analogous context:

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"The Commission's technical requirements promote spectrum efficiency by protecting licensed ... facilities from impermissible interference within their service areas. The interference rules necessarily limit construction or modification of other nearby facilities. Underlying these interference standards and their attendant "preclusionary" effect is the basic premise that licensed facilities will provide adequate service throughout their protected service area. Prohibited overlap is presumptively disfavored because it results in a diminished protected service area. \*\*\* In similar circumstances the Commission has consistently held that absent additional compelling facts and circumstances, enhanced service cannot overcome the longstanding

prohibition against occurrences of harmful signal contour overlap, particularly overlap caused. See Board of Education of the City of Atlanta (WABE-FM), 82 FCC 2d 125, 127 (1980) (increased coverage alone is insufficient to warrant waiver of the interference rule; Commission favors lesser but adequate coverage where proposal would not result in prohibited overlap); Open Media Corporation, 8 FCC Rcd at 4071; Educational Media Corporation, 6 FCC Rcd at 2208. "

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Educational Information Corporation, 12 FCC Rcd 69177 (1991), at paragraphs 9 and 16.

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Finally, considering the modest degree of penetration that HD receivers have made into the marketplace, it is particularly unjustified to disrupt KATY-FM's existing service to accommodate a new technology for which the American people have not clamored nor to which they have rushed to embrace. The millions living in L.A. who want to receive KRTH can do so quite simply: by tuning into the that Station's superpowerful analog signal. .. the same one that has always been there.

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