



A VERY IMPORTANT MEMO FROM ORBAN

Please route to:

- Chief Engineer
- Station Manager
- Program Director
- Station Owner

AM RADIO CAN SOUND ALMOST LIKE FM.

It always could -- theoretically. And it used to sound much better than it does today. What happened? As the number of radio services grew, the better fidelity receivers all too clearly reproduced the increasing static and other garbage created by other stations and other unwanted sources, particularly at night.

Receiver manufacturers did what they could to reduce listener complaints -- they narrowed the bandwidth (thereby reducing audio fidelity) until the complaints about interference stopped. Listeners clearly indicated, through their buying habits, a clear preference for lower fidelity over continuous irritating static, buzzes, whistles, and "monkey chatter" from adjacent stations. People accepted this situation for a long time -- until the simultaneous advent of improved receiver technology and the FCC's anti-simulcasting rules created the FM boom of the late '70s.

Even after the success of FM so vividly demonstrated the public's attraction to high fidelity sound, changing the status quo in AM seemed unimportant and difficult at best. AM would always remain king, it was thought.

But now FM is on top and engineers have been intensively seeking a way to improve AM to take advantage of its natural capability and make it again competitive with FM. AM stereo was thought to be an answer, but AM stereo was embraced with the false assumption that having 'stereo' automatically meant having 'high fidelity'. While AM stereo did provide somewhat better fidelity, it was not comprehensively engineered to get the best fidelity from AM. It was hoped that the gimmick of having two channels would be enough to save AM.

Now, through a heroic effort among certain audio processing manufacturers, receiver manufacturers, and broadcasters, under the banner of the National Radio Systems Committee (NRSC), a new two-part Standard has been developed that will:

- a) significantly reduce adjacent channel interference between stations (by strictly limiting out-of-band emissions through a sharp low-pass filter). This allows the widening of receiver bandwidths since there will be less interference; and
- b) improve perceived fidelity to about a 10 kHz bandwidth (compared with 3 kHz now typical) by application of a carefully defined and standardized high-frequency boost (pre-emphasis) in the audio processor, and a precisely opposite rolloff at the receiver. Receivers will actually have a variable rolloff (probably automatic) to reduce bandwidth in fringe areas or where the interference level is still too high to maintain maximum listenability.

You might notice that 10 kHz is still well short of the 15 kHz audio bandwidth achievable in FM. True. But it is vastly better than 3 kHz. Further, most ears would be able to tell little difference between this improved AM and FM with normal program material heard on typical mass receivers. (Due to the present channel allocation situation, it is impossible to do better. Hundreds of allocations would have to be vacated to make more room.)

The Standard is not difficult or expensive to implement. But it must be implemented quickly by all stations in order to be successful. Why?

>>> The major receiver manufacturers (especially Delco) have made it clear that they will design fine new receivers that take full advantage of the NRSC Standard, **but only if broadcasters first show good faith by widely and promptly implementing it.**

The NAB is very involved in this and is tallying AM stations as they implement, so that the rate of implementation and the total population of equipped stations may be made known to the receiver manufacturers.

Some broadcasters say, "If I implement, and the next guy doesn't, I still have to bear his interference but he doesn't have to bear mine. And I lose a little quality on a few of the newer receivers."

Naturally an FCC mandate would solve this problem but the Commission is not so inclined and **AM CAN'T WAIT** (can it?).

Voluntary implementation in a hurry is the only way to get AM radio sounding competitive again. And the broadcasters as a group must

take the lead. (AM radios will still sell one way or the other, but AM stations won't necessarily prosper commercially one way or the other.)

ARE THERE ANY SURPRISES?

The NRSC Standard pre-emphasis is somewhat milder than the pre-emphasis now being used by some stations in an effort to force brightness through the present crop of receivers. The milder NRSC pre-emphasis is necessary to prevent interference to neighbors. It will be perfectly complemented in the new receivers. (It will also permit greater loudness potential in the audio processor.)

When a station which is now using aggressive high-frequency pre-emphasis (such as that provided by the Green module in OPTIMOD-AM) changes to the NRSC Standard pre-emphasis (the Blue module), most listeners will hear a dulling of the high end. This will be, unfortunately, most obvious on the higher quality receivers likely to be in the hands of the Program Director and management. The change will be less noticeable on average receivers since they have other inherent limitations in frequency response.

>> You should not allow this phenomenon to frighten you if it affects you. It is a necessary, but temporary, compromise until receivers catch up with broadcasters.

WHAT WILL HAPPEN WHILE WE PATIENTLY WAIT FOR THE NEW RECEIVERS?

Not much. You will gradually notice a reduction of interference as the other stations install the new filters and pre-emphasis. It will take a few years for the new high-fidelity receivers to begin to penetrate the marketplace. As they do, we certainly expect AM's marketability to greatly improve, especially in the automobile in urban areas, where FM reception is often very difficult.

However, unlike other broadcasting 'miracle cures' in past years, the NRSC Standard seems sure to deliver great benefits with no major disadvantages, other than the requirement for complete cooperation and patience among AM broadcasters.

ARE THERE ANY BENEFITS AT ALL RIGHT NOW?

You may be able to achieve a small increase in mono loudness by readjusting the processor. And, with pre-emphasis reduced, your signal will have a wider spot on the dial, making it easier to tune manually and

reducing distortion in the many digital receivers whose alignment is just a bit off. Otherwise, none.

Nothing much else will happen right away. The benefits will blossom when the population of NRSC stations reaches a critical level and, then, as the new receivers penetrate the market place. This will take some time but will pay off in a major revival of the market strength of AM radio in all formats, particularly music formats. But they won't blossom at all unless the seeds are planted!

Action now is of the essence. Your implementing the NRSC Standard will protect stations on both sides of yours, but those stations might not yet be protecting you! We, the NRSC itself, and other audio processing manufacturers are pressing hard to encourage all stations to adopt the new standard promptly. Orban is offering retrofit kits for all OPTIMOD-AMs ever made at very low cost, to make it possible even for the disadvantaged AMs to join the flow.

After you implement, you may find neighbors that don't yet believe in the value of the new NRSC Standards for AM radio. Please put competitive rivalries aside for a few moments, call up the owner, and jawbone him a little. We'll be happy to send him a packet of information on the Standard. And, you could send him a copy of this letter as a quick start. The prosperity of AM radio and the value of its properties are at stake.

Do be patient with others -- some folks take a little more 'show me'.

John Delantoni

ORBAN ASSOCIATES INC.