Comments on FCC Docket 13-249

To whom it may concern,

As an engineer for an AM music station, I have come to some conclusions about things that can be done to make the AM broadcast band better for everyone. I recently came in to possession of a Sony SRF-A100 (FCC ID: AK896ASRF-A100), and when I heard our station on this receiver, I couldn't believe AM radio can sound this good. It actually sounds better than some of the FM translators we have in the area.

It has come to my attention that the vast majority of AM receivers on the market are designed with "Good Enough" mentality and quite frankly make anything received sound like mud. I'd like to propose the FCC implement requirements for manufacturers of radios to actually design a decent performing receiver.

I'd propose that analog type receivers be required to use a synchronous type detector.

All radios should be designed with a minimum or 9 kHz audio bandwidth by using a 20 or 25 kHz wide IF filter. A "narrow" switch would be optional making the receiver go to 5 kHz of audio bandwidth with either a 10 or 12.5 kHz IF filter. They should also have very narrow and deep op-amp based audio notch filters to eliminate the 10 kHz first adjacent carrier whine and a 9.5 kHz op-amp low pass filter.

The cost of the parts to do this is not prohibitively expensive. The IF filters are $4 in single piece quantities, the op-amps and associated 1% tolerance passive components would add $3-$5. As a consumer, I would gladly pay a premium price for a radio that actually sounds good on AM.

Furthermore people are confused over AM stereo. I am currently unaware of any modern receivers being built by any major manufacturer today that actually decode C-QUAM. I often see "AM - FM Stereo" receivers marketed, which technically only mean that the FM portion is in stereo.

I'd therefor propose that if a radio is built with a FM stereo decoder, it should be required to decode C-QUAM AM stereo as well. Mono radios with only a single speaker such as pocket transistor style would be exempt, but radios with 2 speakers such as boom boxes and car radios should be required to decode it and stereo walkman type recievers.

Software Defined Radios such as the ones that decode "HD-Radio" should be required to decode C-QUAM stereo as well. I recently bought one of these receivers because I understood that it did, but for some reason any unit built after 2006 no longer does. This is a simple matter of

writing the additional software to look for a pilot tone and decode the audio, and the per unit cost would be negligible.

On to the topic of man made interference, you've got a lot of problems here. I recently bought a pack of flourescent CFL twist lights and much to my dismay the packaging in small print said "May cause interference to receivers from 0.45 to 30 MHz." Which is really awesome because that has the potential to jam the entire AM broadcast band and all of HF and Short Wave as well. The fixtures in my house take 2,4 and 6 of these at a time. This is a real problem to consumers because incandescent light bulbs which are interference free on all of those frequencies are becoming harder to find or are no longer available.

Just the other day our AM station was being blamed for interfering with the local talk radio outlet. The symptoms were that any radio in his house couldn't get any AM stations at all, but he could hear things fine in his car. I suggested he unplug things in his house until the interference stops and low and behold it was his cable modem causing the problem. Going around my house it seems that anything with a switch mode power supply puts out noise to some degree in the AM and HF bands.

I have no first hand experience but I understand that Broadband over Power Line also jams the HF spectrum quite well. As many home stereos derive ground from the power lines I see no easy way to keep the noise from BPL out of a receiver.

In closing I'd like to say that is great that the FCC wants to revitalize AM broadcast and hopefully something can be done to improve receiver quality and eliminate noise sources.

--Matt Krick