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Commission's Secretary
Office of the Secretary
Federal Communication Commission
Washington, D.C. 20554

Re: MB Docket No. 03-185

In the Matter of

Amendment of Parts 73 and 74 of the
Commission's Rules to Establish Rules for Digital
Low Power Television, Television Translator, and
Television Booster Stations and to Amend Rules
for Digital Class A Television Stations

Summary of Comments:

Full power DTV stations should be protected from interference from digital Class A, LPTV, translator, and booster stations to the limits of their viewable coverage, in most cases that being line-of-sight reception. Not only is this a rational engineering solution, but would eliminate the need for viewers to file complaints of interference to regularly used full power DTV stations.

Dear Madam Secretary:

My comments on this matter are motivated by interference to full power TV stations in our area by Class A, LPTV, and translator stations. Rockford has had up to six low power stations at one time during the last decade. Ultimately every station was on a 1st adjacent channel or co-channel to a Chicago area full power TV station.

Rockford is beyond the Grade B contour, and presumably beyond the FCC defined DTV noise-limited contour of the Chicago stations when they reach final buildout. However, due to transmitter locations on tall buildings and good transmission terrain, the Chicago stations, 120 kilometers (75 miles) away, have been viewable 24 hours a day, 365 days a year in large areas of Rockford. The preliminary data indicates that the full power DTV stations from Chicago will be receivable in the same areas. The areas that have good reception have a line-of-sight reception path to rooftop antennas. In a local store demonstration using a big screen TV connected to a rooftop antenna, the picture quality I observed of Chicago DTV stations was outstanding.

A CASE HISTORY OF LOW POWER INTERFERENCE

The Rockford low power stations located their transmitting facilities in or near residential neighborhoods causing adjacent channel or co-channel interference to viewers nearby. If these facilities had been built in the “antenna farm” area of the four full power stations on the side of Rockford away from Chicago, much of the interference could have been avoided. Two licensees located near the head-end of the CATV system hoping to get carried on the area’s cable system. These stations may have been primarily proxies to get on the CATV system, causing interference to over-the-air viewers in the process. One of these two stations delivered blanket interference to a popular Chicago station on a 1st adjacent channel.

In 1995 a complaint was filed with the Commission regarding five of the six LPTV stations where there was some evidence of interference with a regularly used signal based on rule 47CFR§74.703. Mr. Hossein Hashemzadeh of the FCC handled the complaints admirably. However, three of the licensees never responded to the complainants. One who did respond did not have enough resources to fix a problem causing a non-viewable picture much less deal with an interference problem. The other licensee who responded was only going to remedy the situation if forced to do so. The remedy was going to be a complicated filter installed in the complainants’ antenna systems. The complainants were not happy with that potential remedy. Three complainants who were receiving blanket interference were asked to write letters to the FCC establishing their position. Only one did. With the wherewithal of the complainants declining, the complaint was not pursued any further. The interference persisted.

REASONS FOR A LACK OF INTERFERENCE COMPLAINTS

The Notice of Proposed Rule Making (NPRM) ¶36 states, “A hallmark of the low power television service in its 20-year history has been the few reported cases of interference caused by LPTV and TV translator stations.” I wouldn’t cheer too loudly because in view of the Rockford story described above there may be reasons other than lack of interference as to why there are few reported cases.

First, none of the complainants in the Rockford situation originally knew that they had any rights or means of complaining. In fact when I originally called an FCC office in Chicago, I was given misinformation, which for most people, would have stopped the complaint process dead in its tracks. I doubt the Commissioners are going to hear about interference if the complaints are squelched at the lowest levels. I only discovered §74.703 in the Rules after considerable research on my part. When I found out other people were having problems worse than mine, I informed them that there might be some recourse.

Second, the complaint process can be daunting for many individuals. Additionally many individuals lack the time to pursue a complaint.

Third, interference solutions may put a burden on the complainant. The complainant may have to accept changes to his or her receiving antenna system that are aesthetically displeasing, cause losses to other channels, or are unreliable. Solution elegance is not of paramount importance to the licensee of the offending station.

Fourth, it is difficult for viewers to know who else is having interference problems. Hence they may conclude it is only their problem. So they just stop watching the channel with interference.

Fifth, some viewers may not technically qualify as having interference even though they do. I talked to a person who watched Chicago TV stations over-the-air, but at the time of the Rockford complaints had no interest in receiving the particular stations incurring interference. At a future date, after a station format change, people like this might be interested in receiving one of the Chicago channels experiencing interference. But as of the time of the original complaints these people would not be counted as receiving interference.

Sixth, some people may not report interference for monetary reasons. When I called a local antenna installer to find out if he had gotten any calls about the LPTV interference, he said he had gotten many. When I asked the installer if he would be willing to document the calls he had received, he refused, saying he wasn't willing to risk losing potential business from the LPTV licensee. So additional information on the extent of the interference was never documented.

Seventh, even if the LPTV station causes blatant interference, if the licensee offers to make restitution, the issue is considered resolved. That idea looks good on paper, but in reality many viewers will not be aware of the offer of restitution or be willing to accept it. While investigating the situation in Rockford, I discovered there were people in DeKalb, Illinois, who were having problems from an LPTV in Chicago on channel 23 interfering with the full power station on channel 23 in Rockford. That LPTV licensee offered to correct the problem at each receiving antenna. But at least one older couple I heard about thought it was highly suspicious that someone would offer to fix the problem for free. So they declined and wound up having to live with the problem. It would have been much better for the viewers if the FCC had been able to ascertain the interference problem during the application process of the LPTV.

PROPOSALS FOR PROTECTION STANDARDS

The Notice of Proposed Rule Making ¶36 also states, "We seek comment on protection standards and methods that will permit digital service opportunities and provide adequate safeguards against interference." The problem in Rockford may have been one of few, but it points to deficiencies in protecting viewers.

Viewers generally are not going to see notices of new Class A, LPTV, translator, and booster facilities or of changes to those stations and would be unable to assess the interference impact in advance. So complaints about interference wind up occurring after a new station goes on the air or after changes. When it reaches this point, the best solution to the interference problem is often very expensive, so it may not get corrected properly. From the discussion in ¶39 of the NPRM about emission masks, the point is made that, "Sideband splatter from transmissions on adjacent channels cannot be filtered at viewers' receivers...." So some remedies at the viewer's location may not even be possible as they were for analog transmissions. It would appear that a gram (ounce) of prevention is worth a kilogram (pound) of cure.

That prevention has to come from the FCC. With advances in terrain mapping technology, the FCC should be able to more precisely identify the true limits of full power DTV reception with rooftop antennas. If my understanding is correct, this would require an expansion of the Longley-Rice methodology to predict conditions beyond the DTV noise-limited contour as it is defined. If that can be done, then distant reception of full power stations could be correctly protected.

The full power station reception should be protected from all classes and types of lower powered stations. There is no tradeoff just because interference is coming from a Class A station versus a regular LPTV, translator or booster. Interference is interference. I would hope the Commission would try to define interference from lower powered stations (Class A, LPTV, translator, and booster) more closely with the

physical realities. Let's make the DTV system reliable, stable, and something that viewers, broadcasters, and the FCC can be proud of.

Areas where full power line-of-sight signals at 9 meters above the ground result in a regularly received digital signal at least 15 dB above the noise floor (minimum DTV reception level) should be protected from co-channel and 1st adjacent channel interference. The nature of DTV is such that if you've got a picture, you've got an outstanding picture. There is a lot of good viewing beyond the DTV F(50,90) "noise-limited" contour. I don't think the Commission dreamed that UHF, NTSC low power signals from Chicago could travel 75 miles to Rockford. Those signals, which in the FCC CDBS data base do not appear to be directionalized toward Rockford, are certainly noisy, but viewable in color. So imagine what a full power station and digital technology can do. Once the receiving antenna is beyond the horizon, in effect, a terrain factor, the signal becomes sporadic, and no longer deserves protection. Digital television reception has a much more naturally defined distance limit than analog does. Why not take advantage of that?

Co-channel interference degrades the reception of both full power and Class A, LPTV, translator, and booster stations. Chicago full power signal strength can jump 20 to 25 dB in our area during atmospheric ducting conditions, which occur very frequently during the year, particularly in the warmer months. Even though a low power station may not appear to interfere with a full power station and vice versa in terms of the DTV F(50,90) noise-limited contours, in practice, ducting will create significant periods of objectionable interference. I have seen the co-channel situation on many occasions at the upper end of the UHF spectrum with a full power analog station, over the horizon, 135 kilometers (85 miles) away doing major damage to the video and audio of an analog LPTV 8 kilometers (5 miles) away – with the directional receiving antenna pointed away from the full power station and toward the LPTV! To prevent situations like this with DTV, it should be possible to extend station protections by using signal strength predictions including terrain factors beyond the usual protected contour to include the areas just before the digital signal dies. The packing density of stations will be a bit less, but the quality will improve. Let's not lose these beautiful DTV pictures to the ravages of overpopulation. This is the opportunity to create good neighbors between the Class A, LPTV, translator, and booster stations and their full powered brethren.

The key to eliminating 1st adjacent channel interference is to keep the Class A, LPTV, translator or booster transmitting antenna out of or adjacent to the 15dB minimum signal-to-noise ratio zone of the distant full power DTV station. A Class A, LPTV, translator or booster is going to overwhelm receivers close to them. Keeping these low power transmitters a safe distance away from the full power 15dB minimum signal-to-noise ratio zone would give the viewers a fighting chance. The safe distance would be determined from the desirable-to-undesirable (D/U) ratios.

In my experience low power stations move their transmitters to new locations more often than full power stations. Movement in our area can destabilize the reception of viewers of distant Chicago stations. Imagine how disconcerting it is to wake up one day to find a TV station you've been watching for years is no longer receivable because a Class A or LPTV has relocated itself in your vicinity. Using Rockford as an example, by keeping the area's low power stations, including Class A's, that are co-channel and 1st adjacent to Chicago full power stations in a "safe zone" where they don't interfere with the Chicago stations, movement within the safe zone would be minimally disruptive to reception of the full power stations. This proposal may conflict with §74.737(c), which suggests a location within 8 kilometers of the area to be served. However, with the use of a directional transmitting antenna, covering the greater Rockford area should not be a problem. In fact a location in or near the full power "antenna farm" would allow receiving antennas in the area to point in the same direction to get all of Rockford's stations. Also adjacent channel, equal power LPTVs could meet their D/U ratios more easily being in the same area. In view of NPRM ¶55, I would be in favor of letting the low power stations locate in the same vicinity and

not be required to be on the same tower or building. If there were a table of allotments for Class A and LPTV stations, same-vicinity location would probably be easier to accomplish because the channels to be accommodated would be fixed.

I like the idea of spectral masks for Class A, LPTV, translator, and booster stations. If Class A, LPTV, translator, and booster stations were required to use spectral masks to eliminate complaints of 1st adjacent channel interference, it would be an economic incentive for licensees to treat potential interference seriously. It would also give the Class A, LPTV, translator, and booster stations an option to relocating or changing channels to eliminate interference. If handled correctly, this could be the proverbial "have your cake and eat it too".

The premise underlying my proposed interference protection beyond what the Commission is initially proposing is that protecting full power distant signals provides for a wider diversity of programming and competition. Given the choice between two different channels for a low power station, one that would truly cause interference and the other that would not, using the interference-free channel allows for two stations, rather than the low power station excluding a distant full power signal. Two stations are better than one.

In view of the idea that two stations are better than one, there has to be a limit on the number of Class A, LPTV, translator, and booster stations in an area. As I have seen, station applicants, as a rule, do not have a feel for the reception conditions in a market. Particularly, out-of-town applicants and their consulting engineers can crank up the computers with the goal of shoehorning in another station, unaware of local viewing patterns. That can be an efficient way of using up spectrum geographically, provided there is no collateral damage in the process. Smaller cities may be locked out of low power DTV openings if applications gravitate to the larger population centers like Rockford. With fewer allocation taboos for digital transmission versus analog, low power stations could fill every nook and cranny in Rockford's spectrum with a concurrent increase in interference. In the way of interference damage control, I propose a limit on the number of stations in a given locality, whether by a table of allotments or some other means. If allotments in Rockford were for channels that were not co-channel or 1st adjacent with full power channels providing line-of-sight reception to the area, the interference problems would be non-existent. But these allotments would have to be frozen to keep some enterprising applicant from destroying the whole balance.

If none of the proposals for increased interference protection materialize, hopefully, at least the interference protections in §74.703 remain in effect for digital low power stations. It may be tantamount to using a bow and arrow to fight off an adversary with a rifle, but if the viewers are at risk of losing their reception territory, they should continue to have the grounds to plead their case.

ADDITIONAL COMMENTS

RECEIVING ANTENNA FRONT-TO-BACK RATIOS

The theoretical front-to-back ratios for DTV directional receiving antennas in the Longley-Rice methodology appear to be too idealized, particularly for low-band VHF. Also lobing of the receiving pattern is ignored, which can be particularly troublesome at higher UHF channels. Unless a new breed of receiving antennas are available, I would suspect the actual interference rejection of real-world antennas will fall short of the theoretical values in the Longley-Rice methodology. This would mean that the interference levels would be higher than predicted.

CLASS A VERSUS LPTV PROTECTION

Class A digital stations should not be located where they could create interference to regularly used full power stations beyond the protected contour. If the Class A failed to maintain its status as a Class A station, then it would have to meet interference requirements as an LPTV. That could be quite disruptive. In response to a question in ¶49 of the NPRM, if Class A stations are subject to the same interference standards as the LPTV service, then a station could make transitions back and forth between Class A and LPTV status without being subject to changing interference criteria.

INTERFERENCE AGREEMENTS

With regard to ¶50 of the NPRM, I agree that with regard to interference agreements, “The consent of a full-service station does not obviate the responsibility of the LPTV or translator station to eliminate interference caused to over-the-air reception of the full-service station, wherever its signal is regularly viewed.” We have had an analog interference situation in Rockford where a Class A station from Chicago that is co-channel with a Rockford station caused interference to the Rockford station. An employee of the Rockford station told me that his station had signed an agreement to allow the interference after the fact. Maybe the station received monetary compensation for lost revenue, but the viewers received none and were stuck with the interference. Don’t let agreements between stations subject viewers to objectionable levels of interference. Television is still supposed to serve the public.

MINIMUM TECHNICAL QUALITY

In ¶74 of the NPRM it states that, “we do not believe it necessary to propose standards for digital LPTV transmitters related to signal quality.” On multiple occasions for many months at a time one of the LPTV stations in Rockford had successive problems in its transmission chain that resulted in a non-viewable NTSC picture. For situations like this viewers should have some means of encouraging the LPTV station to rectify the problem. By requiring LPTV stations “to provide a free video programming service of at least NTSC technical quality, intended for reception by the general public” (NPRM ¶23), the public has an opportunity to assess if the “lights are on, but nobody’s home.”

PROGRAMMING CHOICES

Rockford may be an unusual situation because of its proximity to the 3rd largest television market in the country. The tall transmitting antennas in a larger market and the terrain make it possible for the signals to travel farther than usually expected. The programming choices from the 3rd largest market make it worth defending those signals. Whereas with more limited resources the Class A and LPTV stations tend to “narrowcast.” Narrowcasting and broadcasting are fine; they just don’t need to beat each other up.

CONCLUSION

The bottom line is that viewers in my area live under the constant threat that a Class A, LPTV, translator or booster station is going to go on the air or change facilities creating a co-channel or 1st adjacent channel interference problem with Chicago full power TV stations. The Chicago NTSC signals are very usable and as such are regularly watched. The DTV signals look even better. Even though the Chicago signals are being received beyond their protected contour, they are a full-time resource to the viewers in

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the Rockford area. New technology now allows for better prediction of distant signal coverage. I ask that the FCC implement improved interference protection criteria for viewers at the edges of full power DTV station reception. The viewers can live with the disruptions during the transition from analog to digital TV, but after 2006 we would like reception stability. There is no reason that the signals of Class A, LPTV, translator, and booster stations have to blot out reception of full power stations.

Sincerely,

Ronald J. Brey