

October 19, 1998

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Magalie Roman Salas, Secretary
Office of the Secretary
Federal Communications Commission
1919 M Street, N.W.
Washington, D.C. 20554

Dear Ms. Salas:

Attached please find the original and eleven copies of our **Comments** on the Notice of Proposed Rule Making and Order -- MM Docket No. 98-93 (FCC 98-117) entitled: 1998 Biennial Regulatory Review -Streamlining of Radio Technical Rules in Parts 73 and 74 of the Commission's Rules.

Sincerely,


Richard L. Harvey

11 enclosures

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before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
1998 Biennial Regulatory Review --)	MM Docket No. 98-93
Streamlining of Radio Technical Rules in)	FCC 98-117
Parts 73 and 74 of the Commission's Rules)	
)	

COMMENTS OF RICHARD L. HARVEY (WBHX)

The Commission in the subject Notice of Proposed Rule Making and Order ("Notice") proposes several changes to streamline its' rules and to give stations greater technical flexibility. These comments are narrowly directed at one of the proposed changes. In Section III (C) (1) of the Notice the Commission proposes to reduce the minimum separation requirements in Section 73.215(e) for second- and third- adjacent channel stations. We have examined the proposed changes in general and in light of our situation. WBHX is an un-built 1989-Grandfathered Class-A station with tight spacing both to the north and south towards second- adjacent 1989 Grandfathered Class-A stations. Additional restrictions include the Atlantic Ocean and waterways to the east and a NJ State environmentally protected area to the west. As a result of these tight restrictions, finding a suitable transmitter site has been extremely difficult, expensive and time consuming.

We are quite pleased that the Commission is focusing on site flexibility. Tower siting has become increasingly difficult due in-part to the rapid expansion of PCS and Cellular services and local officials resistance to any additional towers . For broadcasters, the widespread, in some cases organized, opposition to radio towers is troublesome, particularly in light of the fact that broadcasters use towers that are generally taller than and power levels greater than PCS or Cellular. With additional tower siting flexibility, it is more likely that a site can be found that is both acceptable to the Commission and to local zoning officials.

We have reviewed the proposed changes and found that they, as proposed, would not provide any additional flexibility for locating our transmitter site. They also fall short of meeting the stated objective of giving all stations 6 kilometers of flexibility. Below is our analysis of the proposed change and also some suggested ways to add additional flexibility.

Analysis of the Proposed Rule Change

The Commission proposes to revise the Section 73.215(e) spacing table to afford all FM commercial stations a minimum of 6 kilometers of relief from the applicable Section 73.207(a) standards. However, the Commission proposes no change in the contour overlap methodology and requirements of sections 73.215(a), (b) and (d). From our analysis, when the new spacing table is used with the existing contour overlap rules in Section 73.215(a) most stations would not receive the intended relief.

In Table 1 (on the following page), we list the various spacing rules that affect second- and third- adjacent spacing between stations. We then compute the protected contours and also the interference contours using a maximum directional operation (15 db front to back ratio with full facilities in the non- protected direction). We then list the required distance that meets the contour protection rules and the amount of flexibility which results. Finally we list the amount flexibility that would result from the rules if no power was generated in the direction of the protected station -an impossible situation but one that shows the problem with contour protection.

Column 9 highlights the results of this analysis. If the protected contour overlap rules are taken into account, out of 28 possible combinations (not including the 1989 Grandfathered Class-A stations) between the second- and third- adjacent channel stations, eight combinations would have 6 or more kilometers of flexibility, two would have 5 kilometers, three would have 4 kilometers, three would have 3 kilometers and twelve would have 2 kilometers.

1989 Grandfathered Class-A stations have less flexibility than 6 kw Class-A stations for *A to C1* and *A to C* and more flexibility (due to lower power and round off) for *A to B*. In the case of 1989 Grandfathered Class-A to 1989 Grandfathered Class-A spacing there is *no* flexibility. Section 73.215 which is intended to provide site flexibility fails to do so (even with the proposed changes) since it requires 29 kilometers between Class-A stations due to the protected contour requirement. The original rules for 1989 Grandfathered Class-A stations only required 27 kilometers. Additionally, the Commission would grant a waiver to allow a six kilometer short spacing if certain

Table 1 - See Explanations and Notes on the following page.

1	2	3	4	5	6	7	8	9	10
2nd/3rd Adjacent Spacing	Section 73.207	Section 73.215 Existing	Section 73.213 1989 GF (3 kw "A")	Pre-73.215 Waiver Policy (3 kw "A")	Protected Contour of Higher Class	Nominal Interference Contour of Lower Class	Required Distance to meet 73.215(a)(1-3)	Flexibility when meeting 73.215(a)(1-3) & Nom. Int.	Flexibility Distance to Protected Contour
A to A	31	29	27	21	28	.67 - .96	29	NONE - 2	NONE / 3
A to B1	48	46	48	42	45	.96 - 1.4	46	2	3
A to B	69	67	69	63	65	1.36 - 1.52	66 / 67	3 - 2	4
A to C3	42	40	42	36	39	.67 - .96	40	2	3
A to C2	55	53	55	49	52	.67 - .96	53	2	3
A to C1	75	73	74	68	72	.67 - .96	73	1 - 2	2 - 3
A to C	95	93	94	88	92	.67 - .96	93	1 - 2	2 - 3
B1 to B1	50	48			45	1.87	47	3	5
B1 to B	71	69			65	2.28	67	4	6
B1 to C3	50	48			45	1.54	47	3	5
B1 to C2	56	55			52	1.54	54	2	4
B1 to C1	77	75			72	1.54	74	3	5
B1 to C	105	95			92	1.54	94	11	13
B to B	74	71			65	3.28	68	6	9
B to C3	71	69			65	1.54	67	4	6
B to C2	74	71			65	2.07	67	7	9
B to C1	79	77			72	2.07	74	5	7
B to C	105	105			92	2.07	94	11	13
C3 to C3	43	42			39	1.54	41	2	4
C3 to C2	56	55			52	1.54	54	2	4
C3 to C1	76	75			72	1.54	74	2	4
C3 to C	96	95			92	1.54	94	2	4
C2 to C2	58	56			52	2.07	54	4	6
C2 to C1	79	76			72	2.07	74	5	7
C2 to C	105	96			92	2.07	94	11	13
C1 to C1	82	79			72	3.20	75	7	10
C1 to C	105	105			92	3.20	95	10	13
C to C	105	105			92	3.59	96	9	13

Table 1: Explanations and Notes

Where two numbers appear the first is for 1989 Grandfathered Class-A stations and the second number is for Non-Grandfathered Class-A stations.

Column 1: Station Classes

Column 2: Section 73.207 Separation Spacing

Column 3: Existing Section 73.215 Minimum Spacing

Column 4: Class-A 1989 Grandfathered Required Spacings

Column 5: Minimum Spacings with waiver for 1989 Class-A stations prior to 73.215 being created.

Column 6: Distance to the Protected Contour of the Higher Class Station. (If Class-A then we used the current 6 kw. Class-A)

Column 7: Nominal Interference Contour is based on maximum facilities of the lower class station in the non-protected direction and the maximum front to back directional antenna ratio of 15 db. For class-A stations the first number is for 1989 Grandfathered Class-A and the second is for current Class-A stations. The ERP and HAAT used in the protected direction is as follows: 1989-Class-A/.094 kw.@100 m., Class-A/.188 kw.@100 m., Class-B/1.56 kw.@150 m., Class-B1/.781@100m., Class-C/3.13 kw.@600m., Class-C1/3.13 kw.@299m., Class-C2/1.56 kw.@150m and Class-C3/.781@100m. This is a likely maximum use of the flexibility provided. Presumably, a station would need to run near maximum facilities in the non-protected direction to meet coverage needs. We have assumed no unusual HAAT effects.

Column 8: Computed distance to meet 73.215(a) contour overlap requirements.
(Equal to Column 6 + Column 7)

Column 9: Actual Flexibility when using the protected contour and interference contour

Column 10: Distance between the protected contour distance and the non-short spaced distance. This would be the total distanced available for the interference contour and flexibility distance combined based on the protected contour. This is equivalent to having an ERP of zero watts in the direction of the protected station.

conditions existed. Originally, 1989 Grandfathered Class-A stations could be separated by as little as 21 kilometers. The Notice proposes to change the table in 73.215(e) to allow additional short spacing (down to 25 kilometers for Class-A stations); however, other rules in section 73.215 (a) will prevent WBHX and many other stations from using the added flexibility.

Suggested Rule Changes to Provide Additional Site Flexibility

Below are suggested rules changes in the area of second- and third-adjacent channel spacing that would create additional site flexibility. Recently the Commission has changed its' rules pertaining to second- and third-adjacent channel spacing for 1964 Grandfathered stations. In Docket 96-120 the Commission eliminated these adjacent spacing requirements. In considering those changes, the technical merits of these restrictions were considered and the Commission concluded that it could eliminate them for all stations Grandfathered in 1964. Our comments, as wells as comments filed by others showed that the technical basis for these restrictions are not strong and the contour protection rules actually increase the potential of interference. We have repeated our comments in Appendix A.

Suggested Changes:

1. Allow Stations to Locate Closer to the City of License Without Regard to Second- and Third-Adjacent Channel Spacing.

Given that the technical basis of the second- and third-adjacent rules is not strong, the major effect of these rules is to avoid some congestion in the FM broadcast band by forcing certain stations to not locate near each other¹. In some cases this forces stations to locate at some distance from their city of license. This is the case for WBHX. Due to the second adjacent restrictions, there are only two areas were the WBHX transmitter can

¹ The allocation rules also do this taking into account local service levels. The co-channel and first-adjacent channel required spacing also control the congestion in the FM band.

be located. The only fully spaced location for our transmitter site is located on a barrier island². This location is 6.5 kilometers from the nearest town line of our city of license. In addition, the driving distance from the city of license to this transmitter site is over 30 kilometers (due to the location of the connecting bridge).

2. Allow Applications to be Processed Using the Prior Waiver Policy

The use of directional antennas or power reductions cause increased levels of interference, where as locating sites closer together without power reduction decreases interference levels for second- and third-adjacent situations (see appendix A). A means to allow stations additional flexibility when necessary would be useful and not detrimental. The prior rules allowed for this when there were good reasons. For Grandfathered Class-A stations the waiver process had allowed 6 kilometers of flexibility. The current rules do not allow any flexibility and the proposed rule changes (if contour protection were waived) would only give 2 kilometers. The waiver process should be restricted to second- and third adjacent problems, however.

3. Use a Much Higher Protected Contour

This is justified since any second- or third-adjacent interference is limited to the nearby area around the transmitter site and is similar to the blanketing area and the actual interference is less when the proposed spacing is reduced. This is because the signal to interference ratio is improved on (see Appendix A). The interference contour must be

² There is another short spaced area in which WBHX could locate its' transmitter site. This area is 5 kilometers from the town limits and has had significant zoning problems.

set so as to allow stations the possibility of locating within the proposed 6 kilometers of flexibility.

4. Eliminate Second- and Third- Adjacent Spacing Restrictions

The Commission has already done this for 1964 Grandfathered stations. The technical basis for these restrictions is weak and the use of contour protection actually increases the potential of interference. There are other rules such as the co-channel and first-adjacent channel spacing rules and the city grade coverage rules which adequately restrict the locations where FM stations can locate their transmitter sites.

5. Only Protect 1989 Grandfathered Class-A Stations to 3 kw Level

1989 Grandfathered Class-A stations have had nine years to upgrade if it were possible. The reason to protect these stations for full Class-A facilities was to allow for upgrading. There is no reason to continue this. A new 73.215(e) table entry for 1989 Grandfathered Class-A stations allowing for 6 kilometers of flexibility or 21 kilometers as a minimum would provide consistent treatment for these stations. Also the protected contours should reflect these station's lower power.

Summary

In these comments we pointed out an inconsistency that would be created if the proposal to allow for 6 kilometers of flexibility in the Section 73.215(e) table were adopted. The new table would establish new minimum distances that could not largely be

implemented due to the contour protection rules. We have also listed some alternative rules changes that could be implemented with or in place of the proposed rules change.

WBHX has been attempting to resolve the local zoning problem for its transmitter/tower site for the last five years. We have encountered considerable opposition from some members of the public and also from public officials who oppose our proposed tower. The local Zoning Board hired its own communications consultant to study the rules in section 73.207 and 73.215. There was disbelief on the part of the local board and public that the commission would allow flexibility in some directions but not others. This has been a costly process for WBHX and also the local governing body. It has delayed a timely introduction of the first local radio service to several communities.

The second-adjacent and third-adjacent separation requirements of Section 73.215 of the rules has prevented WBHX from utilizing existing towers that would otherwise meet the commissions rules. Since the technical basis for these rules is weak, and utilizing existing towers whenever possible is desirable from a community planning viewpoint, it is clearly in the public interest that the Commission provide the necessary siting flexibility.

Respectfully submitted,


Richard L. Harvey

October 19, 1998

APPENDIX A - Technical Comments on Second- and Third Adjacent Interference

There appears to be good evidence that the technical basis for requiring the physical separation of stations operating with second or third adjacent frequencies is no longer true. Many years ago FM radio receivers drifted (were not frequency stable) and manufacturers installed an extra circuit called an AFC or *automatic frequency control* circuit to help the receiver lock on to the channel. As a result, the radio receiver would sometimes drift to the point where the AFC circuit would seek out an alternate signal instead of the intended signal and the listener would then hear the alternate channel. By keeping adjacent channels a physical distance away, the signal from them would be much weaker and the receiver would not be as likely to change channels. With improved frequency stability and improved selectivity, FM radio receivers for many years now have not exhibited this sort of problem.

Another impact of second and third adjacent signals is that at very strong levels these signals could cause audio distortion to or replace the intended signal. This type of interference has greater potential when the interfering signal is very much stronger than the intended signal and is dependent of the selectivity of the radio receiver. Again for many years, FM receivers being sold have considerably better selectivity than receivers from many years ago.

Another factor supporting the elimination of second and third adjacent channel spacing restrictions is the fact that the current rules can actually increase the potential of interference. Section 73.215 requires that whenever a station proposes to operate closer

than the minimum separation distance specified in section 73.207 that the station operate with reduced power in the direction which doesn't meet the second-adjacent or third-adjacent channel separation requirements of section 73.207. This is usually accomplished by utilizing a directional transmit antenna at the proposed site. The intent is to protect the station operating on the second-adjacent or third-adjacent channel to the proposed station.

This method fails to provide much protection to the affected station and greatly increases the interference received by the proposed station. Second-adjacent and third-adjacent channel interference is dependent on the ratio of the desired signal to the undesired signal and the undesired signal must be significantly greater than the desired signal to cause the interference. As a result, the effect of using a directional antenna at the proposed station is to reduce interference to listeners of the protected station in a very small area where the antenna null is pointed in the vicinity of the proposed transmitter site. Listeners of the protected station in all other directions around the proposed transmitter site would not receive an improved signal to interference ratio due to the directional pattern deployed.

However, at the protected transmitter site the signal from the proposed site is greatly reduced in all areas around the transmitter site. All listeners of the proposed station would receive a reduced signal to interference ratio and much greater potential of interference. Also the proposed station would have a lower signal level in all the square miles between the protected station and the proposed site causing more potential interference to listeners of the proposed station from all other sources. Given the typical

pattern of directional antennas, this would impact a significant percentage of the listeners of the proposed station.

The total effect of the method used by section 73.215 rules is a small reduction in the interference to the protected station and a greatly increased amount of interference received to the proposed station. Given that the amount of second-adjacent and third adjacent channel interference to both stations would be less whenever the transmitters are located closer together, due to the improvement in signal to interference ratios, the method used in section 73.215 has increased the overall occurrence of second-adjacent or third-adjacent channel interference from what would exist without the rule.

Second-adjacent and third-adjacent channel interference occurs in the same area that blanketing interference occurs and could be managed the same way. Limiting the strength of signals in the area nearby the transmitter site would be helpful. This could be accomplished by the use of higher gain antennas without vertical null fill (perhaps by requiring a minimum of a three bay antenna or a half wave antenna) or the use of a higher antenna location. Also if the transmitter site is in a isolated area, the impact would be minimal.

These methods are among the same ones that would be used to minimize blanketing interference. Also like blanketing interference, the second-adjacent and third-adjacent interference potential is very dependent on the receiver used; moreover the blanketing effect has likely masked the effects of second-adjacent and third-adjacent interference, as the commission has noted it has not received complaints specific to second-adjacent and third-adjacent interference. We have concluded and suggest to the

Commission that second-adjacent and third-adjacent channel interference is similar to blanketing interference and could be handled under Section 73.318.