

Comments

FCC 18-69
MB Docket 18-184

This consultant, on behalf of himself, herein provides comments and suggests further inquiry into the proposal of SSR, Communications, Inc. (SSR) for the creation of a new class of FM service (Class C4) and the simultaneous modification of the Commissions rules with regard to short spaced facilities as set forth in 47 CFR 73.215.

Proposed Class C4 Allocations

Should the Commission deem it wise or necessary to create another class of FM radio station, Class C4¹, then this consultant has no objection. The limitation to Zone II as specified by SSR is rather superfluous and is, in my mind, a meaningless restriction. FM propagation does not magically change at the boundaries of Zones I, I-A, and II hence there is no technical reason to not offer this class of radio station nationwide subject to international agreements. Should such a Class C4 allocation be made available outside of Zone II I would suggest that the protected contour be the 60 dBu, the same as in Zone II. Utilizing a different protected contour for the same station due to its location is unnecessary and only adds to the complexity of adding such a service.

Since Class A radio stations in all zones are protected to the 60 dBu the path to an upgrade to a Class C4 from a Class A would logically be protected to that same contour.

¹ Class C4 allocations, as proposed, would specify a model transmitter facility that specifies 12 kW at 100 m HAAT.

Allocation Considerations

Consistent with Commission practice and as with all other existing classes of FM radio stations a Class C4 station could only be allocated if there is a suitable place, on land, where a transmitter site could reasonably be located, that meets the minimum spacing requirements of 47 CFR 73.207² and, in accordance with 47 CFR 73.315 (a), from which the entire city of license is encompassed within a circle with a radius of 19 km³ from such a hypothetical site. Consistent with the Commission's Rules, the contour protection provisions of 47 CFR 73.215 cannot be used for the purposes of allocation.

After the allocation test of the existence of a fully spaced site that meets the city grade requirements is met an application could be processed under the contour protection requirements of 47 CFR 73.215 at the request of the applicant.

Class C4 Proposal

In its Notice of Inquiry the Commission invited comment on whether or not the "creation of a Class C4 service would materially benefit existing Class A stations by providing them an opportunity to upgrade that is not possible today"⁴. The answer to that is obviously situational. In some cases, such as SSR's desire to improve their signal in Jackson, Mississippi, the answer is likely yes. In many other cases in more rural areas with sparse population beyond the existing Class A coverage area the answer is likely no. With regard to rural and underserved areas the 3 dB increase in power will likely not even be discernible since, due to the lack of interfering contours, those areas will typically enjoy a usable signal that extends beyond their normally protected 60 dBu contour anyway. The 5 km increase in the radius of the 60 dBu contour may well not justify the cost of replacing the transmitter or antenna as required to achieve the Class C4 upgrade.

2 This consultant prepared minimum spacing requirements for Class C4 radio stations and a copy of those spacing requirements is included in these comments as Exhibit 1. They may not be 100% accurate due to rounding.

3 The 70 dBu F(50,50) contour of a model Class C4 FM radio station, 12 kW at 100 m HAAT, extends 19.488 km when calculated on the Commission's *FM and TV Propagation Curves* web page. That distance would round to 19 km when the rounding requirements of 47 CFR 73.208 (c)(8) are applied.

4 NOI at paragraph 13.

Broadcast radio seems to follow laws of nature similar to laws on thermal conduction. Whereas thermal energy flows from Hot to Cold, radio signals flow from rural to less rural. This is understandable due to the availability of advertising revenue.

Other than applications that were filed, essentially sacrificed, so as to clear the way for another station to make an urban "Move In" I can't recall ever filing an application for a radio station that sought facilities that served a more rural population at the expense of an urban area. While some existing Class A licensees may elect to upgrade to enhance urban coverage they likely will not upgrade to enhance their rural coverage as there is no underlying economic incentive to do so.

There may or may not be a substantial impact on secondary services as a result of the creation of a Class C4 service. Any such impact will, necessarily, be negative since it will by design increase the distance of interfering contours that the secondary services simply have to accept and it will further increase that distances to the contours that must be protected. If an existing translator was constructed based on protecting a Class A station and that station subsequently upgrades to a Class C4 then the translator could find itself non-compliant with the provisions of 47 CFR 74.1204 (a) or, in the case of a LPFM, 47 CFR 73.807 since that section of the Rules would necessarily need to be modified to reflect the additional class of station. It could further expose a translator licensee to a challenge based on the provisions of 47 CFR 74.1204 (f) even if the translator licensee continued to meet the requirements of the contour protections set forth in paragraph (a) of that section.

In Paragraph 15 of the NOI the Commission asks if there is "a tipping point at which increasingly granular station classifications are no longer conducive to efficient signal coverage and, if so, has that point been reached?" By itself, in my opinion, the proposed Class C4 service is fairly neutral in that regard. Of more concern, and as of yet unknown, is the overall impact of the numerous AM improvement translator applications that have been filed. In many cases those applications have not yet been granted or, if granted, not yet constructed. We may well be beyond the tipping point already regardless of whether or not a Class C4 FM service is created. The creation of a Class C4 service, adds more uncertainty to the list of issues being addressed in MB Docket 18-119 and creates an environment where a translator could be accused of damaging reception to a regularly used full service station when in fact it is interference created by a newly upgraded Class C4 station.

Section 73.215 Proposal

In paragraph 19 of the NOI the Commission requests comment on SSR's proposal that existing full service stations be involuntarily forced to accept the contour protection provisions of 47 CFR 73.215. It is my opinion that this is misguided and it will result in unintended consequences.

Going back to Docket 80-90, the Commission created several new classes of radio stations and afforded existing Class B and C licensees an opportunity to increase their power and or antenna height to a minimum that exceeds 25 kW at 100 meters (either in power or height) above average terrain in the case of Class B stations and 100 kW at 300 meters HAAT in the case of Class C stations or be subjected to downgrade. Most Class B radio stations already operated with facilities that exceeded the newly created Class B1 maximums and it wasn't a huge burden to meet the minimum requirements for them to at least retain the Class B designation. Many Class C stations, on the other hand, operated with facilities that were below the minimum to exceed the newly created Class C1 maximums and, at great expense, most major market Class C radio stations did in fact upgrade to meet the newly established minimum standards for that class. At that time I was a chief engineer at a FM radio station that had to spend just under \$500,000 (1984 dollars) to reinforce the leased tower, build a new transmitter building, replace the existing transmitter, transmission line, and antenna all to increase their HAAT by 45 feet and preserve the class C status of the license. It is worth noting that those owners purchased that FM radio station for just over 5 million dollars two years earlier. That investment protected the license from encroachment until 2000 when the Commission created the Class C0⁵ designation for existing Class C licensees that specified an antenna HAAT between 300 and 449 meters. Given FAA limitations, no tower that exceeded 2049' AMSL could be constructed in that station's service area and the station was forced to accept Class C0 status. The difference in the actual signal of the radio station that moved up the tower 45 feet (14 m) was not discernible and the point of the original investment was to preserve the Class C status of the license.

Docket 80-90 and the subsequent adoption of a Class C0 created great movement within the FM band, either by creating entirely new stations via rulemaking or by moving and reclassifying existing stations.

⁵ Docket 98-93, adopted October 12, 2000.

Existing (pre docket 80-90) Class C radio stations, even after great investment, in many cases saw their real, interference free, coverage area shrink and most certainly saw a marked increase in competition, particularly in urban markets. Forcing involuntary contour protection these radio stations will further degrade their product, the FM signal, and the value of that product.

Forcing involuntary contour protection is also an invitation for chicanery. As described in the NOI, the forced 73.215 status on underdeveloped radio stations would be triggered by an application that seeks to upgrade a Class A radio station to Class C4 status. I can imagine a scenario where there is a radio station that is other than Class A, say a C1 or a C2, is just outside of a large market or a much larger market than the one it presently serves (Station A) and an underdeveloped Class C0 in another market prevents it from directly using the contour protection provisions of 47 CFR 73.215 to achieve such a move to that larger market (Station B). Station A desires to move to the larger market however, since it is not a Class A radio station, it cannot by itself trigger contour protected status on a station that is precluding it from moving to that larger market. What it can do, however, is incentivize a Class A on the other side of Station B (Station C), to seek a Class C4 upgrade and trigger contour protected status on Station B. Once Station B has been forced to accept the 73.215 designation Station A then migrates to the larger market by requesting contour protected status itself. Multiply this scenario hundreds of times.

Repack implications and FM radio stations

The television repack schedule is, at present, partially through Phase One of the planned ten phases. Even accepting the Commission's optimistic schedule the final phase of the repack schedule will not be completed until 2020. Many FM radio stations, particularly Class C0 and Class C stations, share tower space with television stations and some of those radio stations will be dislocated due to structural limitations on the tower itself. The proposed involuntary contour protection provisions in the NOI could effectively lock some stations to their site or force them to actually downgrade or substantially degrade their existing service should they lose their lease. As of this writing there has been the loss of one TV tower in Springfield, Missouri as a consequence of structural modifications to the tower due to repack.

While we hope and pray that this is an isolated incident the reality is that structurally modifying a broadcast tower is a risky endeavor. Failures of broadcast towers, while rare, often occur during construction or modification activities and is the second leading cause of tower failures⁶. The scope of tower modifications as a result of repack is unprecedented in such a short time frame.

Future Opportunities for Underdeveloped Radio Stations

Many, if not most, of the underdeveloped radio stations are underdeveloped as a result of FAA structure height restrictions. It takes little imagination to see the aviation industry progressing to a point where such height restrictions are no longer necessary. GPS based guidance systems are already a reality and it would take very little effort to incorporate structure collision avoidance systems with a data set that includes all structures into such a system. Such a system, which may in fact already exist, would eventually negate the need for the traditional height restrictions inside of the Terminal Control Areas in the US and allow existing licensees to actual increase their height to at or near class maximum. Just as FCC Rules are subject to change so are FAA Rules and Regulations. Each and every Class C0 station that is amongst my clients would upgrade to class maximum facilities if they were afforded the opportunity to do so. Forcing contour protected status on them will more likely than not prevent them from doing so if and when such an opportunity arises.

Here to now the FM broadcast band has worked remarkably well. The minimum spacing requirements of 47 CFR 73.207 have provided for a reliable and robust service which provides nearly every citizen of the country an aural service that is usable. The implementation of forced contour protection status on vast numbers of radio stations will ultimately result in good service in urban areas with a ring of interference around them that may very well take away service from more people than it will provide new service to. I notice amongst those who have filed supportive comments some that are clients and I'm sure my position will not be popular with them however each action has a reaction and that reaction is not always predictable. Those very people that desire to increase their coverage area may well wind up losing real coverage area in the end after they voluntarily take contour protection and allow encroachment on their 60 dBu contours.

⁶ A quick search of broadcast tower collapses in the US since 1970, where an underlying cause was known, just under 30% of such collapses occurred while the tower was under construction, being modified, or was otherwise being serviced.

All information contained in this report is true and accurate to the best of my belief. Having had numerous matters before the Commission, my qualifications are a matter of record.

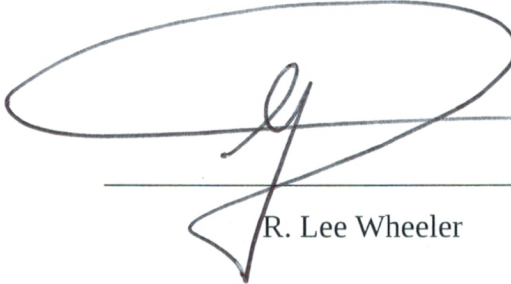
July 9, 2018

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7/9/2018

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Unofficial Class C4 Spacing Tables

	Co-Channel (km)	200 kHz (km)	400/600 kHz (km)	IF (km)
C4 to A	126	80	32	11
C4 to C4	132	85	37	12
C4 to C3	147	94	42	13
C4 to C2	171	111	56	16
C4 to C1	205	138	76	23
C4 to C0	220	157	87	28
C4 to C	231	170	95	32
C4 to B1	157	104	49	13
C4 to B	195	146	70	16