VIR JAMES P. C.
TIMOTHY C. CUTFORTH P.E., DIRECTOR OF ENGINEERING
BROADCAST ENGINEERING CONSULTANTS
965 S. IRVING ST. · DENVER, CO · 80219
(303) 937-1900

DIRECTIONAL ANTENNAS
AM – FM – TV
APPLICATIONS
PROOFS
FIELD MEASUREMENTS
AUDIO AND RF ENGINEERING
EMERGENCY REPAIR

In the matter of:	)	
Amendment of Service and Eligibility Rules for	)	MB Docket No. 07-172
FM Broadcast Translator Stations	)	RM-11338

COMMENTS OF TIMOTHY C. CUTFORTH

Although the matter of whether AM stations should be allowed to originate the signal that is repeated on an FM translator is largely a political issue rather than a technical issue, I believe that once it is decided that the program of an AM Broadcast station is appropriate to feed an FM Translator then the technical rules should be consistent with the rules for repeating an FM station in the same situation.

FILL-IN SERVICE

Because the service area for an AM station varies widely from day to night the service area used to determine the area where a fill-in service is allowed should be the table radio in home contour which for AM is the 2 mV/m contour. The AM 2 mV/m contour is analogous to the FM 60 dBu contour in Zone II and the 54 dBu contour in Zone I providing protected service to indoor home receivers.

AM FILL-IN TRANSLATOR LOCATION RESTRAINTS

There is no comparable FM translator distance restraint. The maximum allowable distance to the fill-in translator on an FM station is set totally by the predicted F(50,50) contour distance and varies widely with the Class and AHAAT. Setting a maximum distance of 25km for a fill-in translator for use with an AM station is equivalent to declaring the maximum desirable AM service area should be equivalent or less than that for a Class A FM station. Class A facilities are generally considered adequate to serve only small to medium sized markets. At a distance of 35km the AM would be allowed to fill-in a service area equivalent to Class C3 or Class B1 FM facilities. Many AM stations providing 2mV/m or better service over an entire metro area in markets are unable to provide interference free service to the whole market at night. Most of the top 100 markets extend more than 35km from edge to edge and limiting the location of the translator to less than 35km will preclude those stations even with the aid of FM translator fill- in service from serving the whole market. If a distance limit is necessary for reasons other than rationing of the FCC workload please use the 35km distance rather than the 25km distance. The scarcity of available translator channels in all but the smallest markets will minimize both the potential for service extension and the FCC application workload.

ALTERNATE DELIVERY

Nighttime propagation and interference from distant AM signals will most often make the direct reception of the desired AM station at the available translator site impossible. Since there are no suitable directional gain antennas practical for AM reception as there are for FM, it is necessary that delivery of the AM signal to the FM translator by alternate means be allowed for AM fill-in translators. Without blanket approval of alternate delivery, fill-in FM translators will be rendered impractical in most of the areas where they are needed the most.

CONTOUR LIMITATIONS

Because of the frequent use of directional antennas to protect distant stations, the AM service has many stations with very irregular shaped contours, some with multiple 40 dB deep narrow nulls. Because it may be impractical or impossible to replicate the shape of the AM station's 2 mV/m contour with a translator at any available tower site suitable for an FM translator I recommend that some allowance should be made such that the bulk of the translator 60 dBu coverage be within the AM 2 mV/m contour. This could be either a percentage of the translator 60dBu coverage area or a fixed maximum area outside of the contour not to be exceeded. For instance, a maximum translator with 12.9km to the 60 dBu contour, 80% of the contour being within the AM 2mV/m contour translates to an area outside of the AM contour of 104 sq. km. For convenience in planning facilities a showing of either percentage area within the AM contour or area outside of the AM contour not in excess of the standard would be helpful in allowing flexibility in providing fill-in service to the largest practical part of the AM daytime listening audience with the limited number and locations of translator channels available for this use.

AM DAYTIMER ORIGINATION

Origination of programming by AM Class D stations with NO protected nighttime service area is necessary to serve the public. A disproportionate number of Class D stations are owned by minorities and small businesses partly because these stations are inherently at an economic disadvantage and were therefore available for purchase. Whether the Class D station is authorized for 2Watts or 200 Watts or no nighttime operation whatsoever, night fill-in service will make those stations more effective in serving the public and therefore more economically viable. It is essential that Class D stations be allowed to originate programming on FM translators during the nighttime hours if this initiative is to have the desired effect of reinvigorating the AM Broadcast Service.

TRANSLATOR OWNERSHIP AND FINANCIAL SUPPORT

Given the scarcity of available FM translator channels near most markets it will be necessary to allow non-owned translators providing fill-in service for AM stations to receive financial support from the station. The owner of an AM station meeting the fill-in contour and location requirements should be allowed to own the translator or to financially support the translator.

TRANSLATORS OUTSIDE OF FILL-IN AREA

If AM stations are in fact allowed to be used as the input for an FM translator in fill-in service, then it should also be allowable for a translator independently owned and not supported by the AM station to receive off the air that signal from another FM translator and to repeat that signal once again as would be allowable for FM stations.

AVAILABLE TRANSLATOR CHANNELS FOR EDUCATIONAL AM USE

AM stations registered with the FCC as Nonprofit Educational should be allowed to use translators on all Channels 201 through 300 as would be allowed for an Educational FM stations. Commercial AM stations should be limited to translators on Channels 221 through 300 as is allowed for Commercial FM stations. However when such an AM station ceases educational broadcasting and becomes a Commercial AM station it must cease use of any translator in the reserved band.

PHASE-IN

I believe that fairness will be served if Class C and Class D stations are allowed to apply for **NEW** translators ahead of Class B facilities. A 6 month filing head start should be adequate to assure that the most disadvantaged stations be allowed to be first in line. All stations that qualify under the technical fill-in rules for a FM translator should be be allowed to use EXISTING translators meeting those fill-in rules effective immediately whether the translator is owned or not.

SUMMARY

- The requirements for an FM translator to repeat an AM signal should be as similar to the requirements for repeating an FM signal as is practical.
- The allowable AM contour for fill-in translator service is the 2mV/m which is analogous to the FM 60dbu contour.
- There should be no distance limitation for FM translator location or the distance should be 35km in order that AM stations not be placed at an automatic disadvantage to all but Class A FM facilities.
- The nature of AM propagation nighttime makes it necessary that alternate delivery of the signal be the standard for a fill-in translator.
- The unique wide useage of directional antennas for AM make it necessary that some percentage (perhaps 20%) or area (perhaps 100sq. Km) of the translator 60 dBu contour be allowed to spill out

of the AM 2mV/m contour so that reasonably available FM sites and channels can be used for fill-in service.

- Class D stations must be allowed to originate programming nighttime even where no night AM operation is possible.
- Translators may be owned by the station or the station owner should be allowed to support a translator used in fill-in service.
- FM translators out side of the fill-in area should be allowed to repeat any other FM translator received off the air whether the original station is an AM or FM as long as no support is received.
- Educational AM stations should be allowed to use translators on Channels 201 through 300.
- Commercial AM stations should be allowed to use translators on Channels 221 through 300.

I believe that if the above recommended technical rules are adopted AM Broadcasting will be given the potential for equal standing with FM in ability to serve the public. The 30+ year head start in allowing FM stations the use of stereo and translators will not be overcome easily.

Respectfully,

Timothy C. Cutforth P.E.
16 November 2007

- Mr. Timothy C. Cutforth is a Professional Engineer licensed in the state of Colorado and is the director of Engineering at Vir James Engineers, a heritage Broadcast Engineering Consulting company that has prepared applications for and provided engineering consulting services to broadcasters for more than 50 years.
- Mr. Cutforth holds SBE certification as Professional Broadcast Engineer.
- Mr. Cutforth has been employed in broadcasting since 1967 and has held a First Class RadioTelephone License since that time.
- Mr. Cutforth holds Amateur Advanced license WA0MGJ and received his first amateur radio license in 1965.
- Mr Cutforth is the licensee of K262BB Boone, CO, K282AK Fowler, CO, and K269FE Pine Cliffe, CO, as well as permittee of AM stations KJME Fountain, CO, KJJL Pine Bluffs, WY, and KCEG Pueblo, CO.
- Mr. Cutforth is on the board of directors of Better Life Ministries which is the permittee of 7 new AM Educational facilities and applicant for 7 AM Educational facilities and applicant for two FM Educational facilities.
- Mr. Cutforth is on the board of directors of Western Indian Ministries which is the licensee of FM station KWIM Window Rock, AZ, and AM stations KHAC Tse Bonito, NM, and KTBA Tuba City, AZ.