

# Comprehensive Engineering Exhibit (EE-1)

## Petition for Reconsideration

BNPFT-20130812ABB

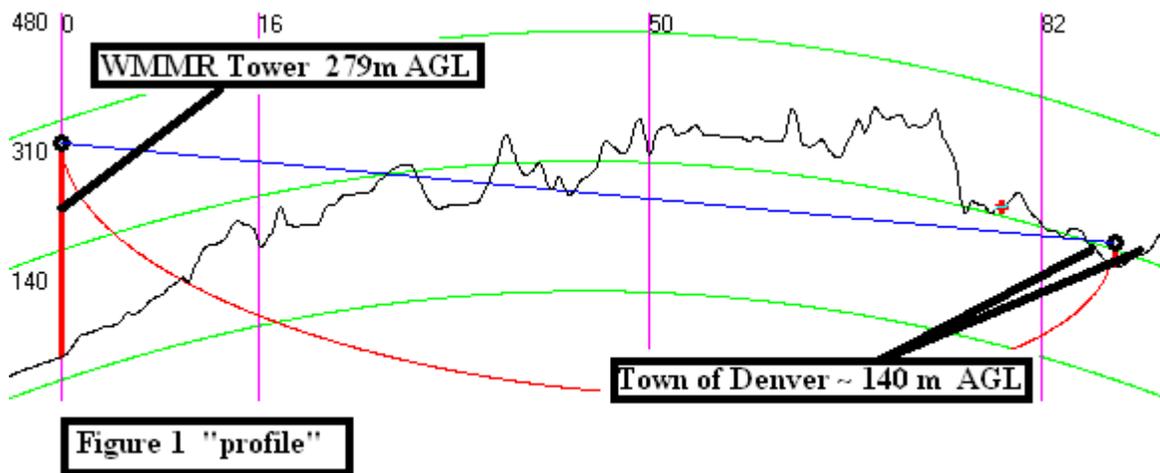
22 November 2013

This petition is made on behalf of Mr. RICHARD E, SNYDER and AIRPORT INVESTORS, L.P. for their translator application BNPFT-20130812ABB. After reviewing the facts of this “case”, Airport Investors requested that their translator application be dismissed due to the opposing engineering. They no longer feel that the opposing engineering is correct and request reinstatement of their application. In addition, the applicant will be requesting operation on an adjacent channel, hopefully rendering WMMR's objections moot. It is clear that the engineering requirements for dismissal were not met. A showing of interference is the only hand that WMMR could play since the proposed translator meets ALL requirements for issuance of a CP with the exception of having listeners within the area of Denver, PA. WMMR states that they have listeners in the Denver, PA area, however, an engineering analysis casts doubt on this claim.

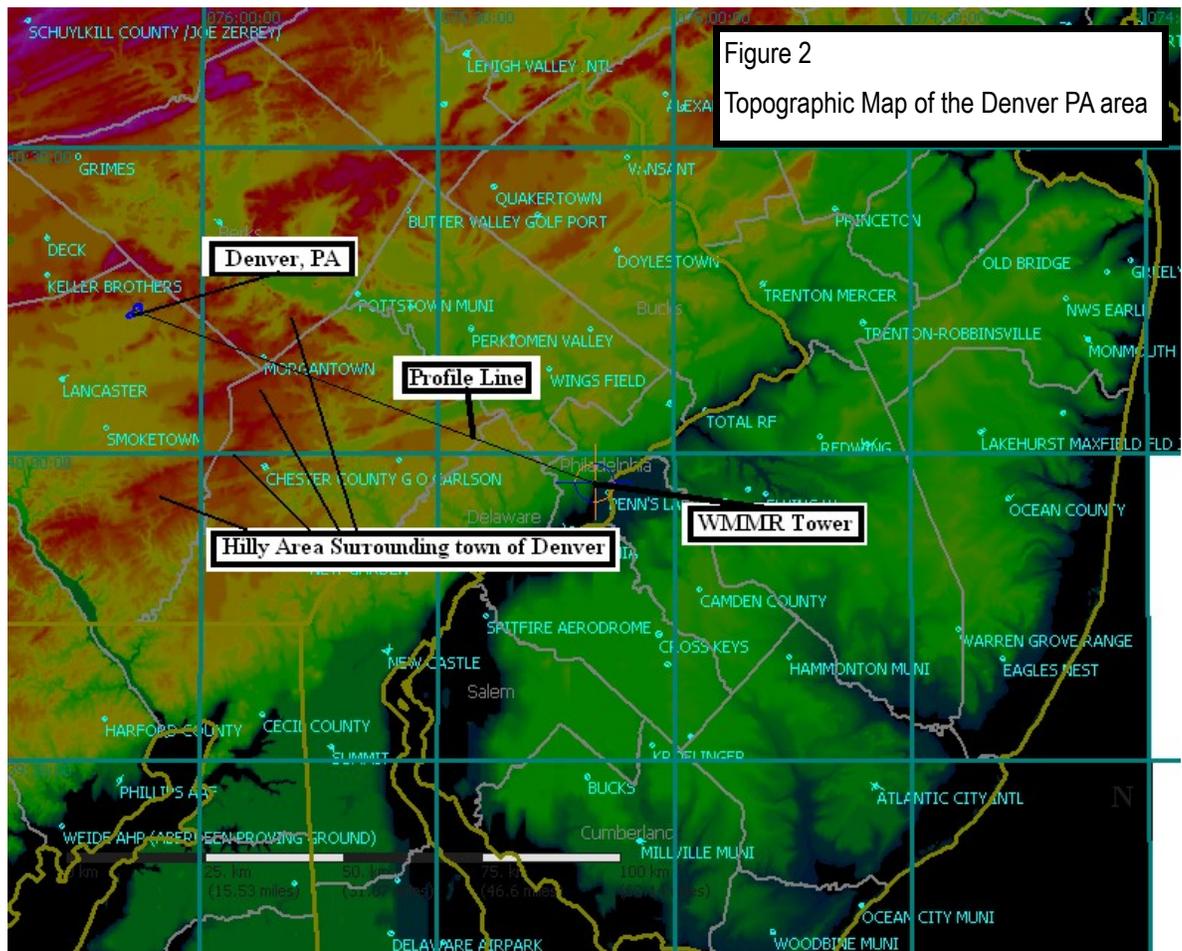
WMMR Objected to Mr. Snyder’s Translator application citing some very well made and somewhat misleading engineering along with providing public comments that were in the product of a “form letter”. It is clear that the respondents were solicited by WMMR and filled out a form provided by WMMR. The letter from Brian Hersh still bears the original lines for placing one's name into the form. Since the form letters were solicited, we cannot determine if the writers would have even been aware of the new translator had it been operated. This leads to questions as to where these people actually hear WMMR. Since the signal levels in Denver are less than 40dBu, it is quite unlikely that they can hear the station directly off-the-air. The best automotive radios have a difficult time reliably picking up signals less than 40 dBu and our analysis shows that signal levels fluctuate wildly down to zero throughout the Denver area. A home stereo is not going to pick up a 35dBu signal. In addition, Denver is within the 34dBu interference zone from co-channel WBZD. Is it even possible to reliably hear WMMR using the best receivers, given the interfering signal from WBZD?

Analysis of the submitted WMMR engineering & petition to deny shows that it does not take into account that the town of Denver, PA is terrain shielded from the direct signal from WMMR's transmitter site. Denver, PA is located in a little valley behind some high hills so the field intensity arguments provided by WMMR's engineers are very optimistic when compared with the results of a Longley-Rice propagation study. Longley-Rice is appropriate due to the roughness of the terrain in the Denver area and between Denver and WMMR.

The Longley-Rice projections indicate that the WMMR off the air signal levels within Denver are far too low to be heard without extraordinary means. Terrain profiles indicate it is unlikely that anyone living in Denver can hear WMMR via off the air reception. The topographic profile presented as Figure 1 removes all doubt. This shows the terrain between WMMR and Denver. The hilly ridge is approximately 100 meters above the town of Denver, PA. Figure 2 shows the terrain map of the area. The ridge curves around the town of Denver, PA permitting very little of the radio energy from WMMR to enter. The modeled loss to the direct signal is 154 dB which agrees very nicely with the Longley-Rice propagation model (figure 3). Four profiles are submitted, each originates at WMMR and goes to one of the people that sent in an email reply to the radio station. From the profiles one can see that there is no direct signal to any respondent. The path loss is noted for each person under the respective graph. WMMR makes an assertion that the local ratings set the number of users within four zip codes surrounding and including Denver, at 2200. This figure is of no value because the listeners can, and most probably are, located in one area and zip code that is not in the Denver area. This leaves it to the reader to try to decide where those listeners are located. Moreover, there is the very real aspect that those listeners may tune in on their way to work, or they may be outside the valley that contains Denver. The last item that needs to be added is the presence of another radio station on WMMR's channel. This is WBZD-FM, 227B1 in Muncy, PA. WBZD puts an interfering 34 dBu contour (f50:10) over Denver, overlapping the WMMR 34 dBu signal. So the faithful listeners of WMMR have little, or no chance, of picking up WMMR. They have even less when you account for the interference from WBZD interference. Checking the four locations of the listeners who were cited in the opposing engineering as residing in Denver, on Google Maps there is no evidence that any of the so-called listeners employ an outside antenna. Given the low signal level and the potential interference that exist in the Denver area, each listener would require a large, outside, antenna to pick up WMMR. I further reason that this is a location where a translator could be used to benefit the people of the community of Denver by actually bringing in the presence of a distant station by providing a usable signal to the residents of the town of Denver.

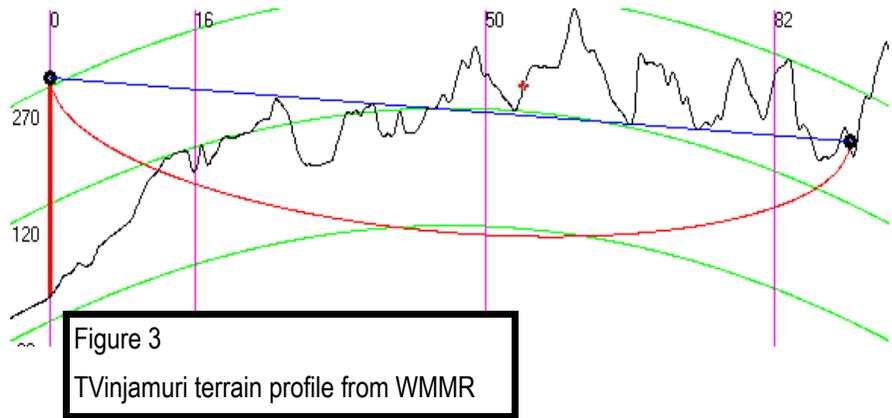


As one can see the high areas depicted in this map as red surround the town of Denver. Because the hills tend to be rugged, this area is a good candidate for Longley-Rice analysis. This results in a much lower predicted signal level which means there is no “34dBu” contour from WMMR in the town.



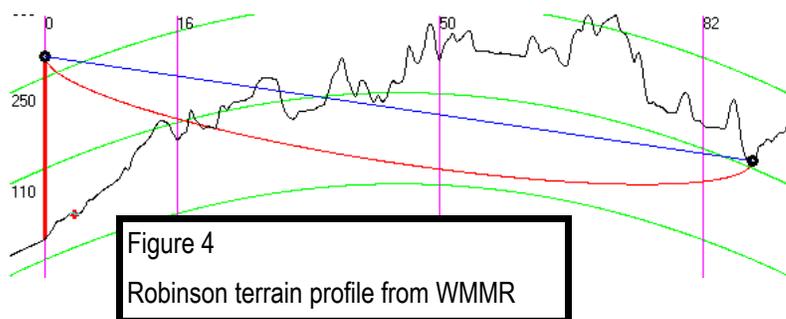
There might be one about 110 meters over head. It seems highly improbable that any of the people who sent in emails to the WMMR “Form Letter Machine” could actually hear WMMR over the air from their residence. The four profile paths below Show the path from WMMR to the respective “listeners”. The receive antenna is set at 2 meters. It should be noted that Longley-Rice profiles were also run with receive heights of 9 meters AGL with very little improvement shown.

The distance to Govind Vinjamuri is 90.97 km. The tower Height used for WMMR is 279m AGL. The model loss is -144.22 dB & the terrain profile is shown in figure 3. The direct wave and more than ½ of the first Fresnel zone is completely obstructed.



These depictions assume a 4/3 earth radius with a 60 % Fresnel zone and a frequency of 100MHz. The study coordinates for Govind Vinjamuri are: 40-17-33.7 N and 76-8-19.7. .

Figure 4 is the WMMR path to Tina Robinson, 828 Oak Street, The distance to her location is 88.72 km. The model Loss is 172.96 dB. The study coordinates are 40-14-22.6 N and 76-8-19.7W



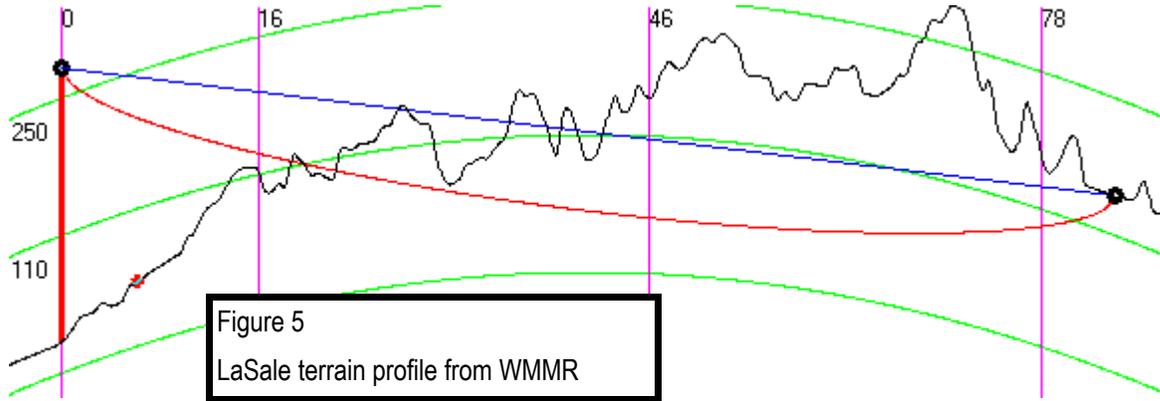
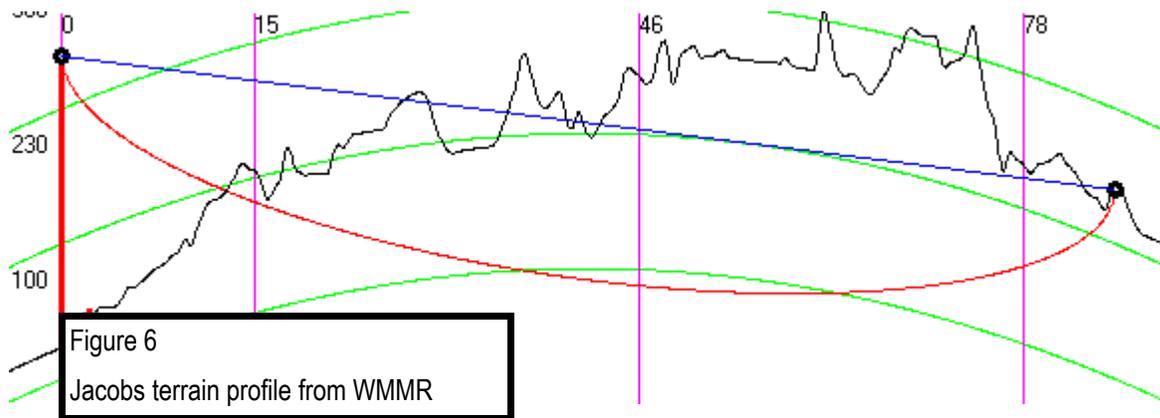


Figure 5 is the profile path for Russ LaSale, 26 Fredrick Ave, Denver, PA. He is 83.33 km distant and the model loss to his location is 155.68 km. The study coordinates are: 40-13-56 N and 76-4-28.8 W



This is the profile path for Rick Jacobs 250 Reamstown Road, Denver. The distance to this location is 84.8 km and the model loss is 155.68. The study coordinates are: 40-13-6.3 N and 76-6-0.

Figure 7 shows interference from WBZD-FM. The 34 dBu interfering (50:10) is used for WBZD-FM. The 34 dBu contour (50:50) is also used for WMMR although the actual signal strength is probably lower. It is well established that a 20 dB ratio is required for a noise-free reception.

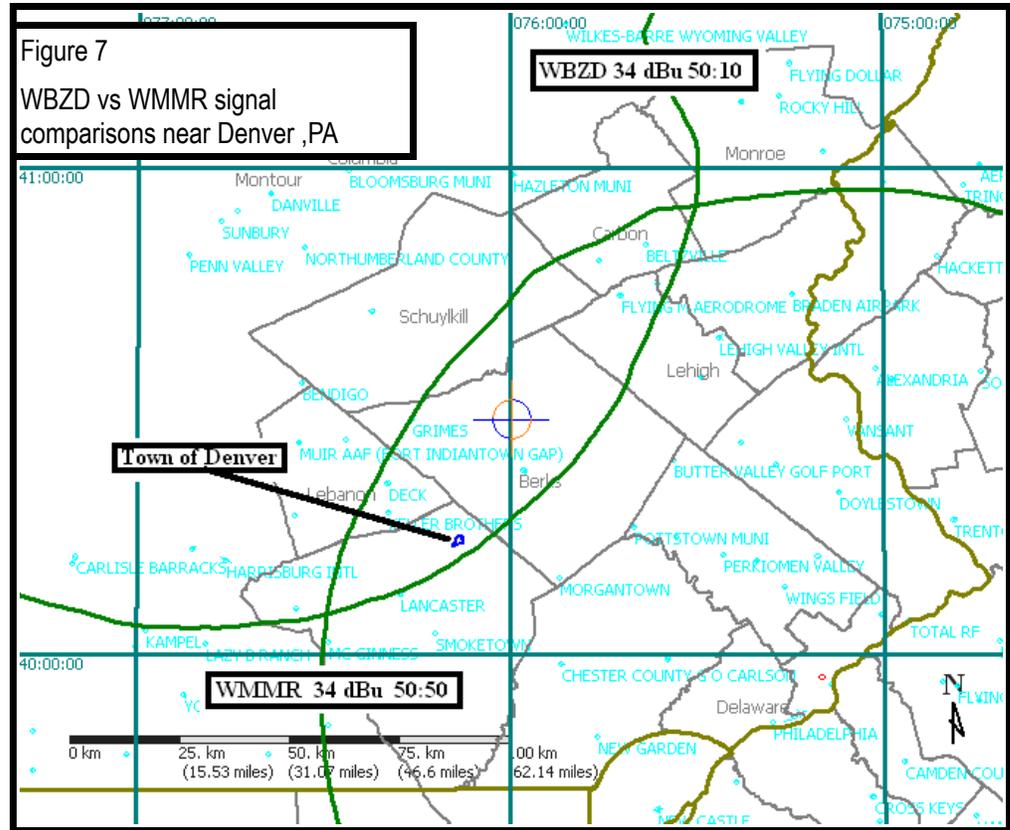
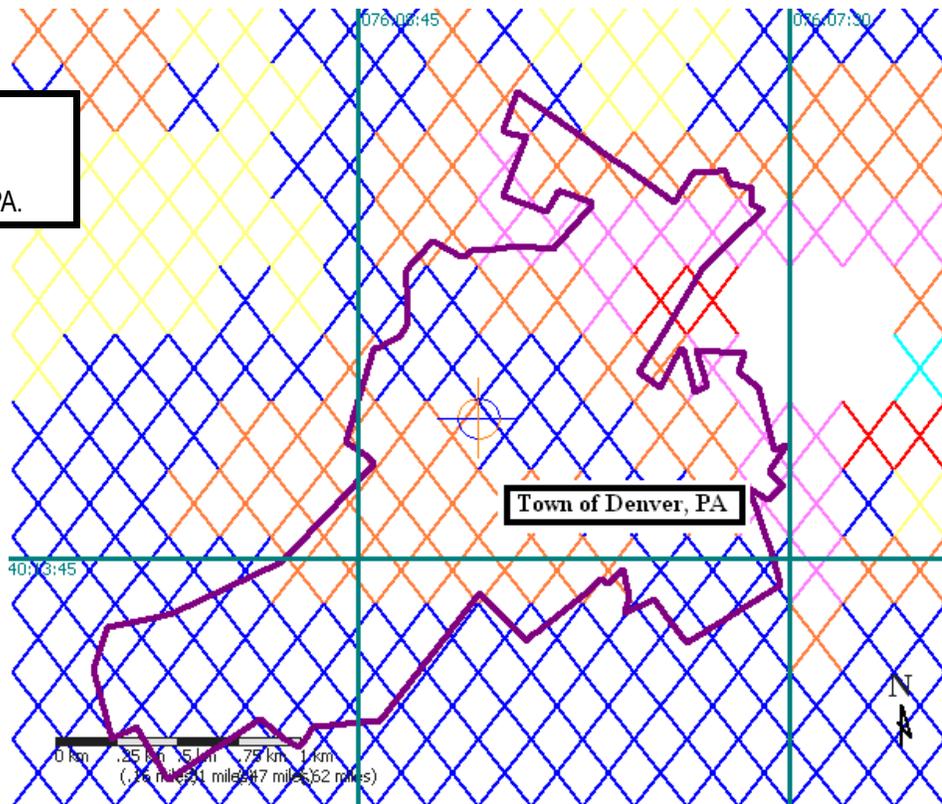


Figure 8 is a Longley-Rice predicted signal map of the Denver, PA area. As can be seen by the map, signal levels mainly reside in the 30 to 40 dBu (Blue) range, although some are in the 10 to 20 dBu (Pink) and a few in the 20 to 30 dBu (orange). There are very few signal levels higher than 40dBu in, or near, Denver, PA. The zone of interference from WBZD covering the town is at least 34dBu.

Figure 8  
WMMR Longley-Rice signal projections for Denver area, PA.



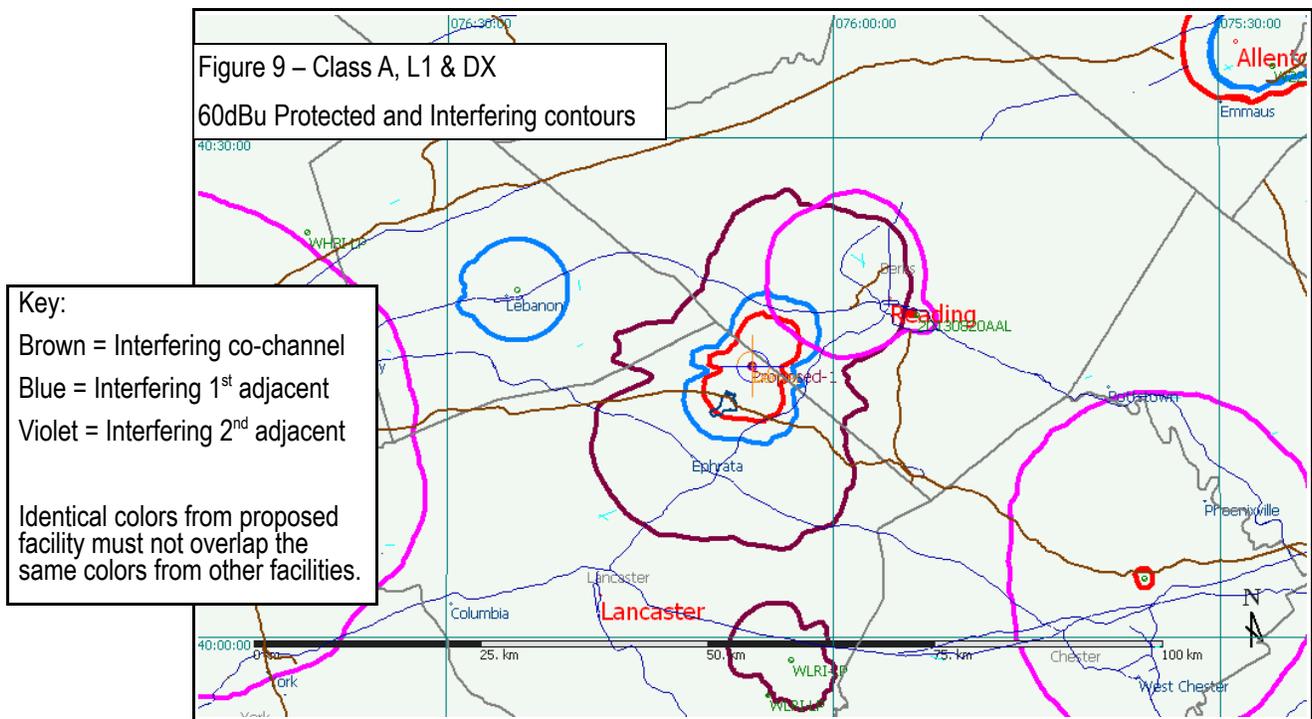
Based on the very weak WMMR signal within the town of Denver and its surrounding area, it is highly unlikely that any listeners of WMMR are actually listening off the air. It is far more likely that listeners of WMMR are doing so by other means, such as Internet streaming or via another translator.

Greater or Equal to:		Pop Cnt:
60	dB(uV)	5,492,609
50	dB(uV)	1,347,381
40	dB(uV)	2,466,740
30	dB(uV)	3,813,987
20	dB(uV)	3,346,325
10	dB(uV)	1,253,058
1	dB(uV)	395,923

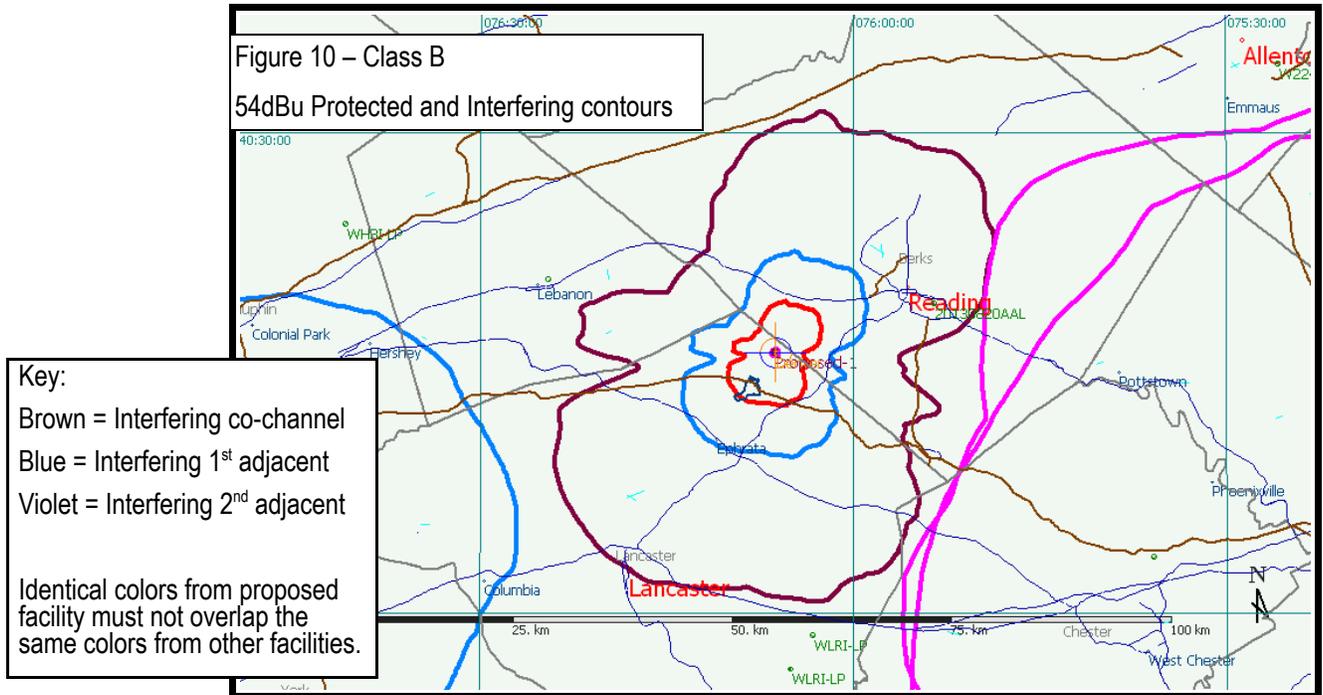
Despite the fact that the applicant believes that WMMR's technical showing is flawed, we are requesting to move to channel 225 in this application. The proposed move makes WMMR's objections moot since the proposed translator will be on the WMMR 2<sup>nd</sup> adjacency. We are supplying new engineering showing that the translator is clear of other stations based on this morning's ( Nov 22, 2013) database.

## Proposed Changes

Figure 9 shows the protected and interfering contours for the proposed facility to all classes of stations except B and B1. Based on the current CDBS data, this application causes no interference to any facility's 60dBu protected contour.



The map in figure 10 shows the protected and interfering contours for the proposed facility to all class B facilities. Based on the current CDBS data, this application causes no interference to any facility's 54dBu protected contour. There were no co-channel or adjacent channel B1 facilities close enough to be of concern.



respectfully submitted,

Barry Magrill, PE  
FL # 45305  
22 November 2013