

MULLANEY ENGINEERING, INC.
4937-G GREEN VALLEY ROAD
MONROVIA, MD 21770



APPENDIX A
3rd ADJACENT TRANSLATOR PROTECTION
Amendment of Short Form 349 App
BNPFT-20180130ABP - WLEC AM - FacID: 202620 -
Sandusky, OH
BNPFT-20180126ABE - WLKR AM - FacID: 202493 -
Norwalk, OH

*BAS Broadcasting Corporation, Licensee of WLEC AM-1450 and Elyria-Lorain Broadcasting Co., Licensee of WLKR AM-1510, both filed Short form 349 Apps for “New” FM Translator Stations at Sandusky & Norwalk, OH. Both Specified an ERP of 250 Watts Omni on Channels 228 & 225 (93.5 & 92.9 MHz) from separate sites that are just 7.44 km (4.6 miles) apart. The FCC declared both applications **Mutually-Exclusive** to each other.*

*This minor amendment **breaks the MX Conflict** & thus, making both apps grantable with respect to each other. Both request a **3rd Adjacent Channel Waiver** since no interference is Caused or Received, as shown herein. Each have agreed to use a Reduced spaced antenna.*

3rd Adjacent Protection

The Translator proposed by **WLEC** is amending to specify a 3 bay HW spaced antenna with no change in channel (228), ERP (250 W) or antenna height AGL (111 m or 364'). **WLKR** is amending to specify a 2 bay 0.75 spaced antenna with no change in channel (225), ERP (250 W) or antenna height AGL (95 m or 312').

As stated previously, each applicant has proposed to locate its 250 Watt FM Translator facility at a site which is just 7.44 km (4.6 miles) apart. Thus, the proposed 60 dBu contour of each Translator **encompasses the proposed site** of the of the other Translator. Thus, creating the potential for a violation of the 3rd Adjacent protection rules around each other's own tower site.

Both stations have **agreed** to use a Reduced spaced FM antenna (exact manufacturer is not critical for protection). The **Reduced spaced antenna** will sufficiently reduce the downward radiation around each of the proposed site such that the interfering contour based upon a +40 dB U/D ratio **never comes within 30 feet of the ground** (on publicly accessible property).

At the site proposed by WLEC for Ch. 228, the signal level from the WLKR proposed facility on 3rd Adjacent Ch. 225 will be **67.5 dBu**. Thus, the appropriate interference contour based upon a +40 dB U/D is **107.5 dBu**. Using Free-Space propagation, the maximum distance for the 107.5 dBu contour is **1,535'** from the antenna which in this case is at 364' AGL.

At the site proposed by WLKR for Ch. 225, the signal level from the WLEC proposed facility on 3rd Adjacent Ch. 228 will be **69.1 dBu**. Thus, the appropriate interference contour based upon a +40 dB U/D is **109.1 dBu**. Using Free-Space propagation, the maximum distance for the 109.1 dBu contour is **1,276'** from the antenna which in this case is at 312' AGL.

3rd Adjacent Waiver

The following exhibits use the **Vertical Elevation pattern** of a multi-bay Reduced Spaced FM antenna to predict the “Undesired” signal level around each station’s “own” tower site using **“Free-Space”** calculations (since the FCC Interference Curves do not predict closer than 2 miles). Although, the calculations are only displayed at fixed distances from the tower, the computer program determines the “Worst Case” interference potential every 1 foot from the tower base. Under the “WORST CASE” column the signal level uses an “Isotropic” assumption of no Vertical Elevation pattern (Golf Ball radiation). Under the “EXPECTED” column the signal level uses the Vertical Elevation pattern of the proposed reduced space antenna (which is given as FIELD RATIO). These are computed at 30' AGL. If the EXPECTED column has a **value Greater Than the U/D_Interference value then Interference is “caused” at 30' AGL**. The last two columns give the Distance & Height AGL

of the U/D_Interference value. Height should always be Greater than 30' AGL over populated areas.

WLEC Justification for Waiver

Table A is a tabulation providing the signal levels at 30' AGL, within **1,550'** of the base of the **WLEC** proposed tower (using Max distance of F-S propagation for the U/D_Interference value). The tabulation uses “Worst Case” (Isotropic) and the **reduction** provided by a 3 Bay HW FM antenna assuming **250 Watts** at a center of radiation of **364 AGL** as proposed for the WLEC Translator.

As can be seen, the “EXPECTED” signal within 30' of the ground **never exceeds** the U/D_Interference level of **107.5 dBu** determined to Cause Interference to the WLKR proposed signal level. In fact, the maximum signal level from the WLEC proposal at 30' AGL is 107.23 dBu at 950' from the tower which is still some 0.27 dB below what would cause 3rd Adjacent Interference.

Figure A-1 is a Google Earth satellite photo of the WLEC translator site. As can be seen, the first occupied dwelling or road is located over 720' from the base of the tower.

Thus, WLEC's application has met the standard for a No Interference Waiver despite being located within the proposed 60 dBu of the WLKR translator. No Interference is caused within 30' of the ground around the proposed site of the WLEC Translator.

WLKR Justification for Waiver

Table B is a tabulation providing the signal levels at 30' AGL, within **1,300'** of the base of the **WLKR** proposed tower (using Max distance of F-S propagation for the U/D_Interference value). The tabulation uses “Worst Case” (Isotropic) and the **reduction** provided by a 2 Bay 0.75 spaced FM antenna assuming **250 Watts** at a center of radiation of **312' AGL** as proposed for the WLKR Translator.

As can be seen, the “EXPECTED” signal within 30' of the ground beyond a distance of 900' from the tower **never exceeds** the U/D_Interference level of **109.1 dBu** determined to Cause Interference to the WLEC proposed signal level.

Figure B-1 is a Google Earth satellite photo of the WLKR translator site. As can be seen, the first occupied dwelling or road is located over 950' from the base of the tower. The fact that the signal level within 900' of the tower exceeds the U/D does not impact any public areas.

Thus, WLKR's application has met the standard for a No Interference Waiver despite being located within the proposed 60 dBu of the WLEC translator. No Interference is caused to the public within 30' of the ground around the proposed site of the WLKR translator.

Summary

BAS Broadcasting Corporation, Licensee of WLEC AM-1450 and Elyria-Lorain Broadcasting Co., Licensee of WLKR AM-1510, both filed Short form 349 Apps for “New” FM Translator Stations at Sandusky & Norwalk, OH. As a result of amendments, to their short form applications, they **No Longer “Cause or Receive” Interference to each other and, thus, are No Longer MX to each other. Both translator applications should now be processed as singleton’s.**

Both applicants cooperated with each other in preparation of their respective amendment.

All facts contained herein are true of my own knowledge except where stated to be on information or belief, and as to those facts, I believe them to be true. I declare under penalty of perjury that the foregoing is true and correct.



John J. Mullaney, Consulting Engineer
Executed on the 22nd day of May 2018.

Table A & B
Figures A-1 & B-1