

Engineering Statement in support of  
FCC FORM 349 APPLICATION  
FOR  
FM TRANSLATOR STATION CONSTRUCTION PERMIT  
(FOR A NEW FM TRANSLATOR STATION)

FM CHANNEL 267 (101.3 mHz)  
Serving Pateros and Brewster, Washington

**Introduction and Summary:**

This is an application by Jerald Edson Isenhart Trust (the Applicant) for a new FM translator station serving the communities of Pateros and Brewster, Washington.

The new FM translator station is proposed for operation on FM Channel 267 (101.3mHz) with 0.010kW Effective Radiated Power (Horizontal & Vertical Polarization) at 863 meters HAAT using a Scala FMO-CP omni-directional antenna.

The antenna location is proposed at north latitude 48-01-00 and west longitude 11 9-58-51 (NAD-27). The antenna will be mounted with its radiation center 10-meters above ground level, on an existing antenna support structure. The structure does not require registration.

Public Notice of this application will be published in the Quad-City Herald, on or about August 27<sup>th</sup>, 2003.

The Public Inspection File for this application will be available for review at the Brewster Veterinary Clinic, 25901 Highway 97, Brewster Washington, during normal business hours.

The new FM translator station proposes to rebroadcast the signal of KZLN-FM, a class C3 radio station operating on channel 248(97.5 mHz), serving Othello, Washington.

The proposed FM translator station will increase human exposure to radiofrequency electromagnetic fields by no more than 6.8% of the maximum permissible general population/uncontrolled exposure at the closest possible ground approach to the antenna structure.

The elevation data pertinent to this application follows (rounded to the nearest meter) is as follows:

Elevation of Site Above Mean Sea Level	1601-meters
Height of Antenna Radiation Center AMSL	1611-meters
Height of Antenna Radiation Center AGL	10-meters
Antenna HAAT	863-meters

Site elevation was obtained by examination of a USGS 7-1/2 minute series topographic map.

Computer generated elevations are based on an NGDC 30 arc-second digital elevation model.

This is a long-form application of CDBS short-form File Number BNPFT-20030317CCK for Facility ID 155378.

Contours were generated using rfInvestigator-FM, a commercially available radio-propagation analysis tool developed and sold by rfSoftware, Inc., Gainesville, Florida. The FCC has previously accepted submissions prepared with this software tool.

## **Summary of Exhibits:**

Exhibit **1-1** is a Contour Study of the Original and Proposed 60dBu F(50:50) contours.

Exhibit **11-1** is a list of possible affected stations (co-channel, 1<sup>st</sup> 2<sup>nd</sup> and 3<sup>rd</sup> adjacent and IF) within 350km of the proposed FM translator station.

Exhibit **11-2** is a tabulation of Radial Terrain Elevation Data used to establish the Height of Average Terrain.

Exhibit **12-1** is a Contour Interference Study of the proposed FM translator station and the closest affected stations.

Exhibit **12-2** is a tabulation of distances to the predicted 60dBu F(50:50) primary service contour of the proposed FM translator station.

Exhibit **12-3** is a tabulation of distances to the predicted 40dBu F(50:10) interfering contour of the proposed FM translator station.

Exhibit **12-4** is a tabulation of distances to the predicted 54dBu F(50:10) interfering contour of the proposed FM translator station.

Exhibit **12-5** is a tabulation of distances to the predicted 100dBu F(50:10) interfering contour of the proposed FM translator station.

Exhibit **12-6** is a Contour Study demonstrating that no part of the 34dBu F(50:10) contour extends over the Canadian border.

Exhibit **12-7** is a tabulation of distances to the predicted 34dBu F(50:10) contour of the proposed FM translator station.

Exhibit **16** is an rf exposure study demonstrating that the proposed FM translator station will increase the general population/uncontrolled exposure limits by no more than 6.8%.

## **Contour Interference Study:**

Exhibit **12-1** is a Contour Interference Study showing the separations between contours of the proposed translator station and the pertinent affected FM stations.

The label “Proposed” identifies the proposed FM translator station. Four color-coded rings surround Proposed.

- The outermost, dark-blue, ring is the 40dBu F(50:10) interfering co-channel contour.
- The next, light-blue, ring is the 54dBu F(50:10) interfering 1<sup>st</sup> adjacent contour.
- The red ring is the 60dBu F(50:50) protected contour.
- Finally, the innermost purple ring is the 100dBu F(50:10) interfering 2<sup>nd</sup> and 3<sup>rd</sup> adjacent contour.

Each possibly affected station is identified with its call sign. One or two color-coded rings surround each affected station.

- Each affected station will have a protected contour. The color of the protected contour will match the proposed stations interfering contour. That is to say, co-channel will be dark-blue, 1<sup>st</sup> adjacent will be light-blue and 2<sup>nd</sup> or 3<sup>rd</sup> adjacent will be purple.
- Some affected stations, if appropriate to the analysis, will have an interfering contour. The color of that contour will match the proposed stations red protected contour.

**If like-colored contours do not overlap then there is no prohibited overlap.**

Exhibit **12-1** demonstrates that construction of the proposed FM translator station would not result in any prohibited overlap of contours with any currently existing station or with any current application since no like-colored contours overlap. For the purpose of this Interference Study prohibited overlap is defined by 74.1204 of the FCC Rules.

Note that in Exhibit **12-1** both the 100dBu interfering contour of the proposed FM translator and the 100dBu interfering contour of K265AX are so small that they are obscured by their respective station location markers.

All computations were performed IAW the pertinent FCC rules. All interfering contours were computed using F(50:10) curves, F(50:50) curves or free-space calculations as appropriate. All protected contours were computed using F(50:50) curves or free-space calculations as appropriate.

The proposed FM translator station is not required to comply with Section 73.207 of the Commission's Rules concerning FM stations operating 53 or 54 FM channels removed from a facility, since the maximum ERP is less than 100 Watts.

### **Request for Waiver to the Rules:**

The Applicant understands that negotiations between the United States and Canada have revised the requirements for FM translator stations near the US/Canadian border. Specifically, 74.1235(d)(3) which limits the 34dBu contour to 60 km no longer applies if the 34dBu contour does not extend over Canadian territory.

Exhibit **12-6** demonstrates that no part of the proposed FM translator stations 34dBu F(50:10) contour extends over the Canadian border. Therefore, the applicant respectfully requests a waiver of rule 74.1235(d)(3).

### **Minor Changes to the Original Application:**

Pursuant to procedures adopted in the *Broadcast Auction First Report and Order* minor changes to the original technical proposal of a short-form filing are allowed if no new mutual exclusivities are created.

The Applicant requests the following minor changes be made to the original application:

- The coordinates of the proposed facility have been adjusted to agree with the existing radio facility.
- The Applicant proposes to increase the height-above-ground of the antenna radiation center from 7 meters to 10 meters.
- The Applicant proposes to increase the ERP of the proposed facility from 0.001kW to 0.010kW.

Exhibit **1-1** demonstrates that with the change in location and power the 60dBu contours of the proposed and original applications overlap.

According to the note in Form 349 General Instructions, Section I, Paragraph E the proposed amendments should be considered minor changes.

### **FAA Notification:**

The proposed FM translator antenna will be mounted on an existing structure at 10-meters AGL. The existing overall height of the support structure will not be changed in any way by the proposed FM translator facility. Therefore, a notification to the FAA will not be made.

**Environmental Statement:**

The proposed FM translator station will be located in an existing radio-communications facility. The antenna will be mounted at 10-meters AGL on an existing structure. The addition of the proposed facility will not change the height of the existing structure. No new tower construction or modification is proposed.

To the best knowledge of the Applicant:

- The existing structure is not located in an officially designated wilderness area or wildlife preserve, nor does it threaten the existence or habitat of endangered species.
- The facility does not affect districts, sites, buildings, structures or objects significant in American history, architecture, engineering or culture that are listed in the National Register of Historic Places, or eligible for listing, nor does it affect Indian religious sites.
- The site is not located in a flood plain and did not, at the time of construction, require significant changes in surface features such as wetland fill, deforestation or water diversion.
- The existing structure is not illuminated.

The Applicant will cooperate with all site users, managers and owners with regard to the cessation of operation or the reduction of operating power, whenever it is necessary to comply with the FCC Regulations and Guidelines on Human Exposure to Non-Ionizing RF Radiation.

Exhibit **16** shows that the addition of the proposed FM translator station to the existing radio facility will not cause a violation of maximum permissible exposure limits at ground level plus two meters in either the controlled or uncontrolled regions surrounding the existing antenna support structure.

Based on this information it is determined that an Environmental Assessment is not required.

**Request for Grant of Application:**

The Applicant, Jerald Edson Isenhart Trust, requests the Commission consider this application for the facility proposed herein and respectfully requests the Commission GRANT this application for the facility as proposed.

Respectfully submitted,

Jerald Edson Isenhart, Trustee  
Jerald Edson Isenhart Trust  
8/20/2003

**Engineers Certification:**

The engineering portion of this application was prepared by Joseph M. DiPietro, P.E. (the Engineer) in support of an application filed by the Applicant for a new FM translator station serving the Communities of Pateros and Brewster, Washington.

The Engineer performed all computations used in the preparation of this application. All specialized software programs used to calculate contours, power levels and heights, as well as the various database search tools used to gather information on affected radio stations were developed and written by the Engineer or were developed and written under his direct supervision and control.

The Engineer DOES NOT have a significant business interest in the Applicant.

Joseph M. DiPietro, Professional Engineer.  
State of Florida Certificate Number 53242  
August 20, 2003