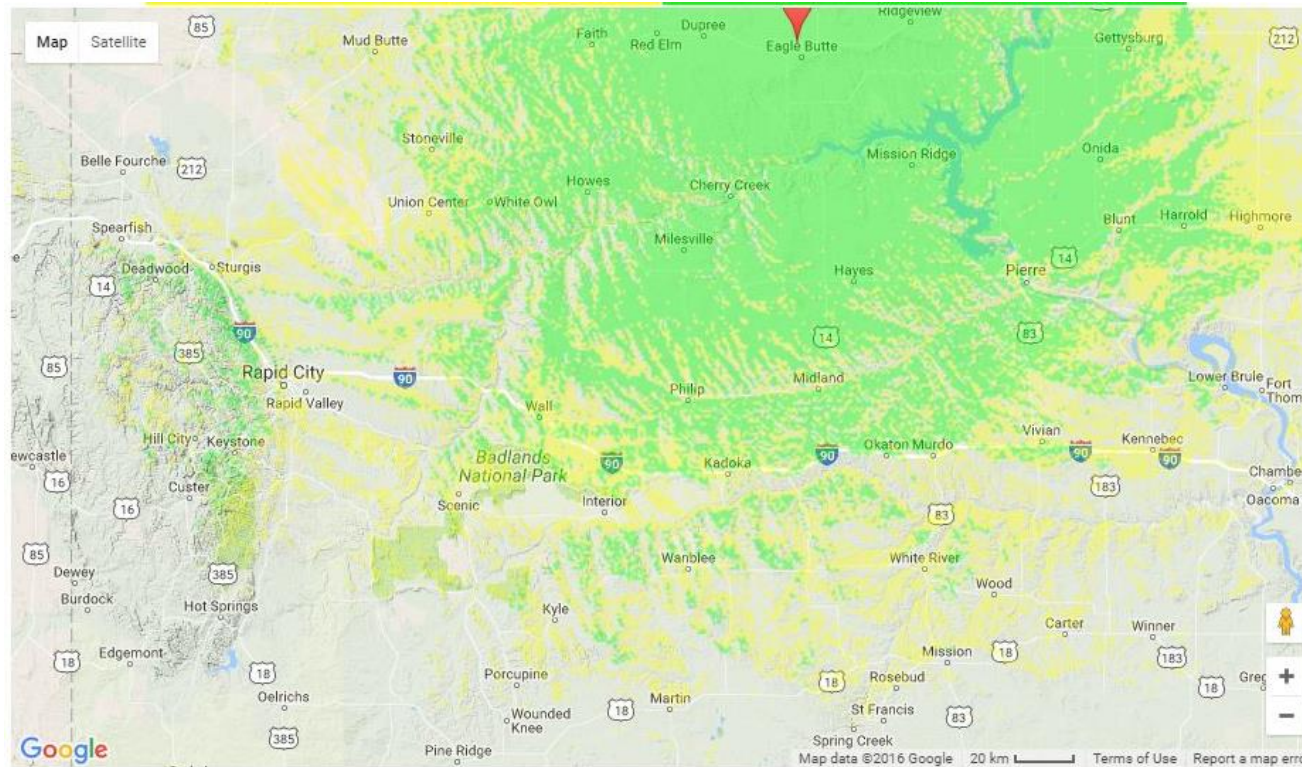


FM Translators for AM stations

We have the license, now what?

(and other translator tips, tricks and suggestions)



Agenda

Overview

- Legal
 - Audio source
 - Originating program
 - Moves and changes
 - Interference issues
- Technical
 - Equipment features
 - Building on a budget
 - The “must have” items



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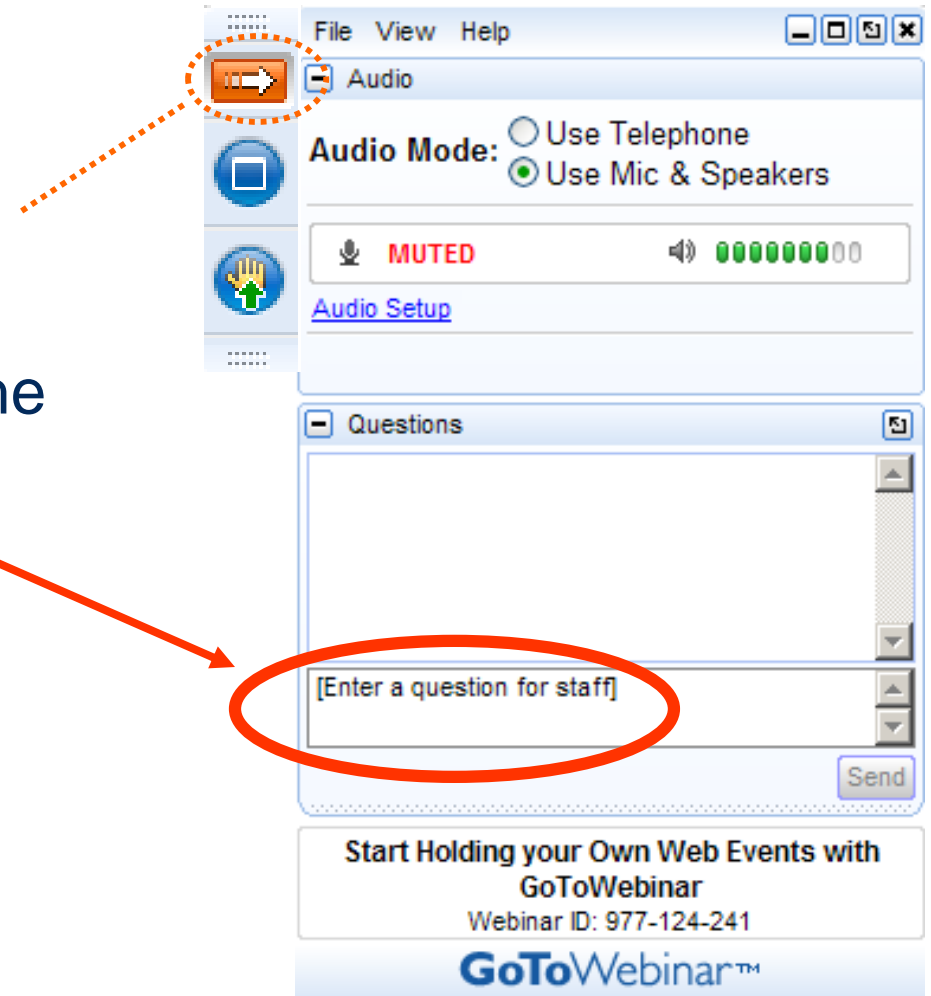
Your questions please?

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Please enter your questions in the text box of the webinar control panel (remember to press send)



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We've got the CP – now what?

What equipment is required?

How do we feed program?

What other things do we need to know?



FM BROADCAST TRANSLATOR/BOOSTER STATION CONSTRUCTION PERMIT

Authorizing Official:

Official Mailing Address:

Deputy Chief
Audio Division
Media Bureau

Facility Id:

Call Sign:

Permit File Number:

Grant Date:

The authority granted herein has no effect on the expiration date of the underlying construction permit.

This permit modifies permit no.:

Equipment

- Transmitter
- Audio processor
- Antenna/coax
- Other things?
 - Audio distribution
 - IP access/control
 - Failsafe if main signal off



**VS Orban
Free or
1-2-3**

Antenna

- Must comply with requirements of CP
- If mounting on an AM tower, may require isolation.

Antenna Coordinates: North Latitude:	deg	min	sec
West Longitude:	deg	min	sec
Transmitter: Type Accepted. See Sections 73.1660, 74.1250 of the Commission's Rules.			
Antenna type: (directional or non-directional): Non-Directional			
Major lobe directions (degrees true): Not Applicable			
	Horizontally Polarized Antenna:	Vertically Polarized Antenna:	
Effective radiated power in the Horizontal Plane (kw):	0.25	0.25	
Height of radiation center above ground (Meters):			
Height of radiation center above mean sea level (Meters):			
Antenna structure registration number:			

Antenna

- Remember that antenna configuration will determine transmitter size.
- $TPO = \frac{ERP}{\text{antenna gain}} + \text{line loss (W)}$
- Radomes, deicers?
 - Consider effect on weight and windload on tower



Photo courtesy of www.shively.com

Antenna

If mounted on an AM tower, what do we need to be aware of?



Photo courtesy of www.kintronic.com

VS Series: Presets

- 50+ configurable presets :
 - Frequency, power level, digital mode
 - Audio Input source and level
 - RDS and SCA configuration
 - Orban Inside preset
- Allows easy switching for N+1
- Audio input failure sensing for auto switchover to backup inputs
- Provides FSK ID capability



Legal Notes on Audio

- Must rebroadcast station to which licensed – except for Class D daytime only AM stations.
- What is the difference between “in-contour” and “out-of-contour”?
- Can audio be fed directly from studio, or must it be from an AM receiver (or HD receiver for HD FX)?
- What if main transmitter (or HD signal being rebroadcast) fails?

Internal USB Player



Playlist		Files	Streams
	Sequence	Type	Name
	1	File	/mnt/usb/FishermanBlues.mp3
	2	Livewire	Channel 1

VS Series: Orban Inside



- Optional DSP card mounts inside any VS series
- Runs Orban 5500 5 band / 2 band processor.
- Monitor and control via the internal VS AUI webserver.
- Works with:
 - L&R, AES/EBU, Livewire
 - ShoutCast, ICEcast
 - USB player inputs.
- AES/EBU in/out
 - uses VS stereo generator
- \$1,200
 - saves thousands relative to standalone processors.



Orban Inside Setup Screen



Other Legal Notes

- Must ID three times per day in audio at specific times, or once per hour by Morse Code FSK
- What are the signage requirements for transmitter site?
- What station records are required for a translator and where to keep them?
- Can we move it? When should we consider that?
- What about if we are receiving interference?
- What about if we are causing interference?

Additional Thoughts

- EAS is required under Part 74
- RBDS – how should it be used?
- How about HD Radio technology?
 - There are currently two translators licensed as hybrid digital (for FM stations).



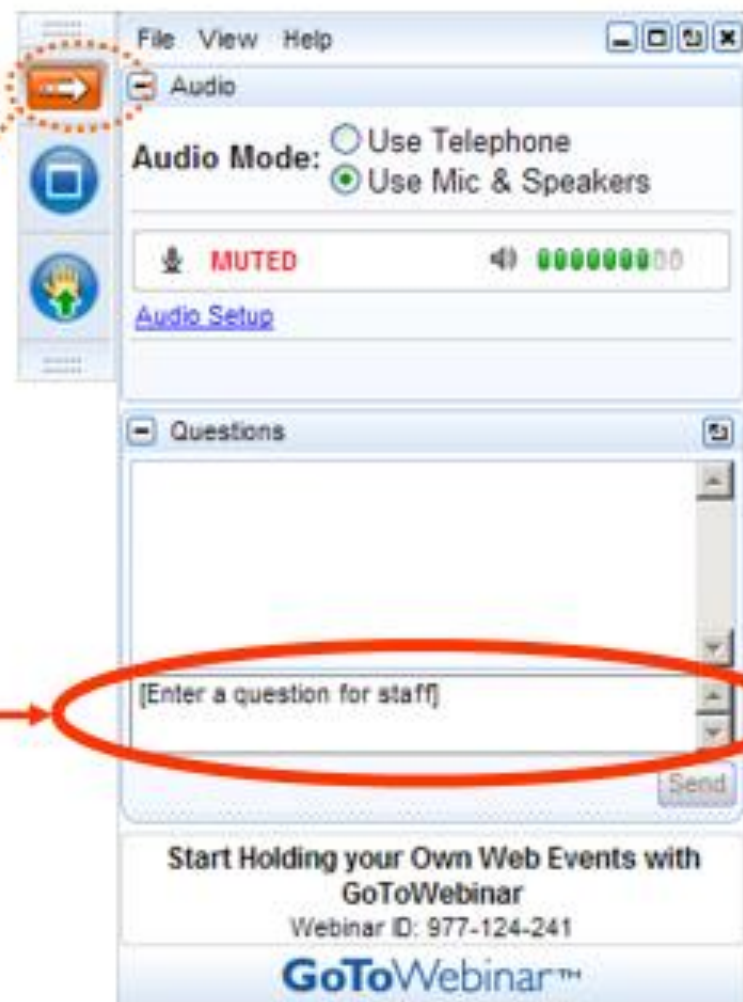
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Photo courtesy of www.hdradio.com

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Thank you! For additional information:

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Don't forget to register for our Nov. 1 webinar on getting content to and from the transmitter site: www.nautel.com/resources/webinars

