

Transmission Challenges and Solutions for All-Digital AM IBOC: a brief overview

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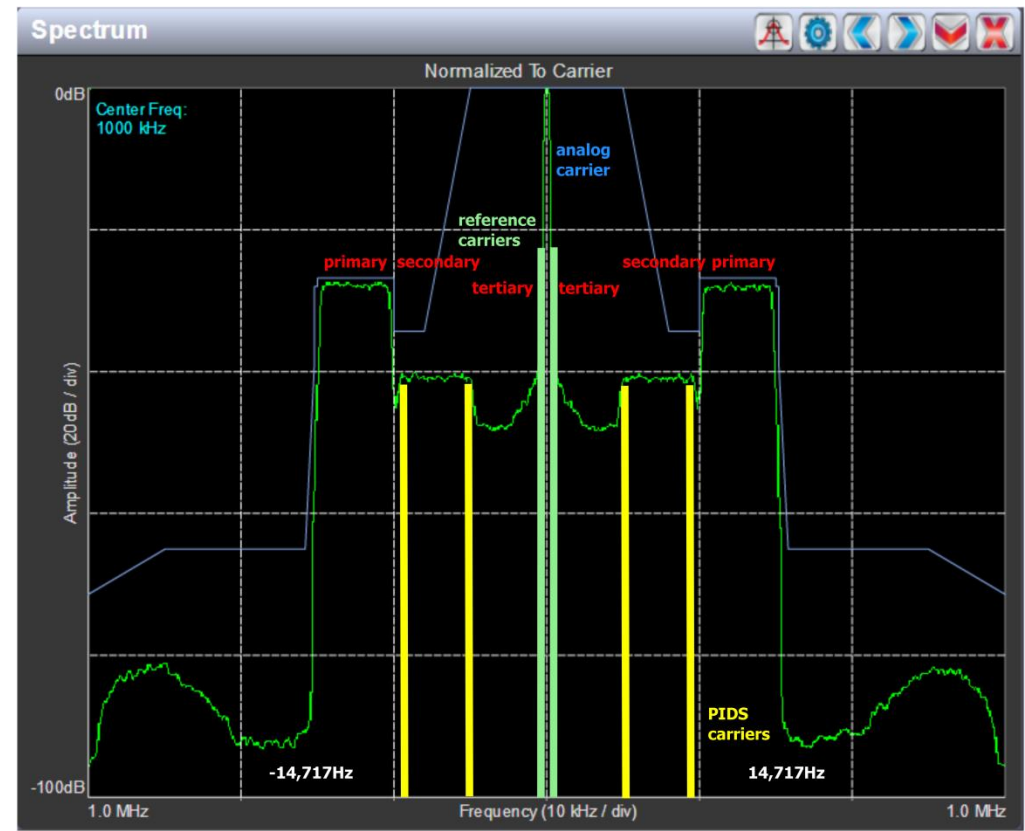
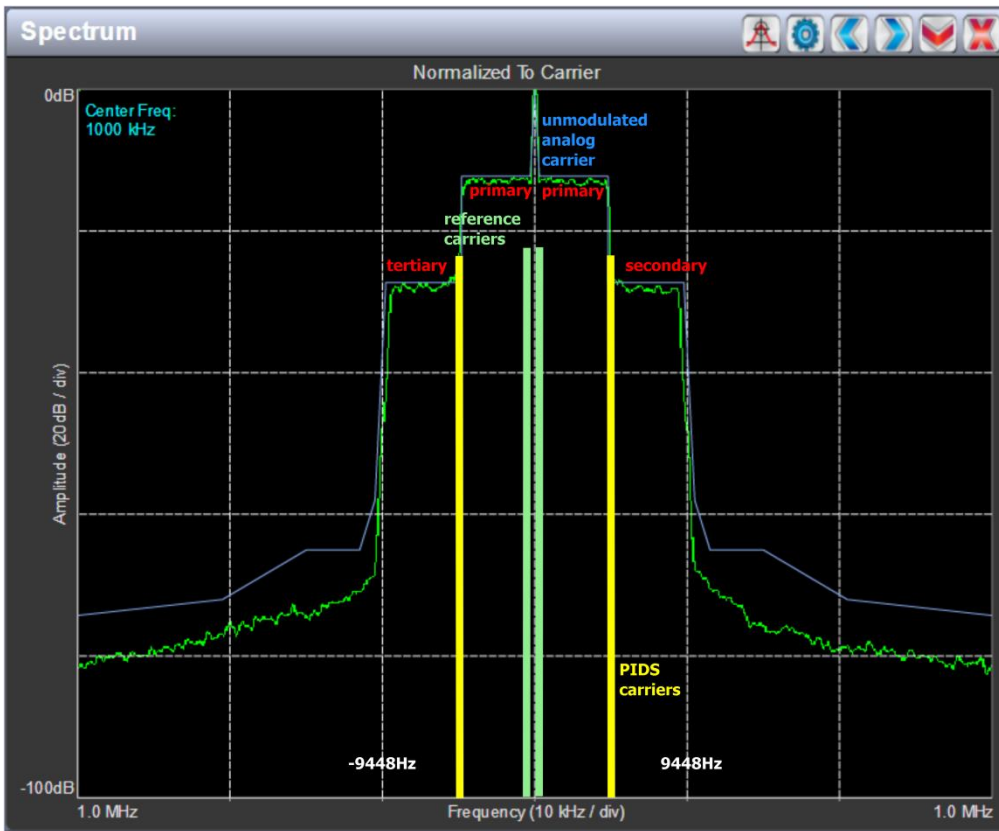
Why use all-digital AM IBOC, MA3?

- Approximately 10 dB increase in resilience to noise compared to the equivalent power MA1 transmission: the primary digital carriers are increased 15 dBc, but to maintain reasonable RMS power the carrier must be reduced by 5 dB
- Enhanced carriers are now receivable over more of the coverage area, giving better audio quality
- Reduces required bandwidth to 20 kHz with enhanced carriers, or 10 kHz in reduced bandwidth mode

MA3 vs. MA1

- MA3

- MA1 without analog mod



Transmitter nonlinearity

Several sources of nonlinearity can cause the transmitter to fail the spectral mask. The effects are slightly different than even with the hybrid signal.

- Amplitude distortion (AM-AM)
- Incidental phase modulation (AM-PM)
- Frequency response on the envelope or phase path
- Peak power limitations (clipping)

Measurement tools

