

**ABSTRACT****AN IN-BAND-ON-CHANNEL BROADCAST SYSTEM FOR DIGITAL DATA**

5 An FM broadcast transmitter (Fig. 5) transmits a broadcast signal having a carrier at a broadcast frequency and sidebands, able to be transmitted at full power, within a transmission bandwidth around the carrier. It includes a source of a modulated FM stereo signal having a carrier at the broadcast frequency and having sidebands with a bandwidth less than the transmission bandwidth representing a stereo signal. It also
10 includes a source of a modulated IBOC signal, having carrier pulses spaced relative to each other to represent the IBOC digital data signal encoded as a variable pulse width encoded signal, and a bandwidth within the transmission bandwidth not overlapping the FM stereo signal sidebands. A signal combiner combines the modulated FM stereo signal and the modulated IBOC signal to form the broadcast signal. An FM broadcast
15 receiver (Fig. 6) receives a broadcast signal including a first modulated signal representing an FM stereo signal, and a second modulated signal, having carrier pulses spaced relative to each other to represent an in-band-on-channel (IBOC) digital data signal encoded as a variable pulse width encoded signal. It includes a signal separator for generating a first separated signal representing the FM stereo signal and a second
20 separated signal representing the IBOC digital data signal. An FM signal processor generates a stereo audio signal represented by the FM stereo signal. An IBOC signal processor generates a digital data signal represented by the IBOC digital data signal.

Fig. 5

