

What is P25?

For a radio to be P25 compliant, it must be CAI (Common Air Interface) compliant. The fact that a radio has 12.5 kHz channel spacing (narrow band) capability does NOT make it P25. A basic P25 CAI compliant radio must be capable of operating at 25 kHz or 12.5 kHz in an analog or digital mode.

This term P25 is used to describe the APCO (Association of Public Safety Communications Officials International) specified standard for digital voice modulation. This standard specifies the type of digital signals transmitted by compliant radios. One radio using P25 CAI should be able to communicate with any other P25 CAI radio, regardless of what manufacturer produced the radio. P25 CAI uses a specific method of digitized voice called Improved Multi-Band Excitation (IMBE). The IMBE voice encoder-decoder (vocoder) samples the audio input at the microphone and produces a digital stream that represent the sound, this digital stream is then transmitted. The receiver sends this digital stream to the vocoder in its radio and it is used to produce a synthetic equivalent of the input sound.

P25 CAI is a digital voice (modulation) type and therefore can be used on conventional channel radio system or in a trunking radio system. System type is not dependent on the use of P25 CAI except in the case of a Project 25 Trunking Radio System; in that specific case only P25 CAI modulation is used (no analog allowed).

Any purchaser of communications equipment using 2009 FEMA Fire Grant funding must purchase only P25 compliant equipment. P25 trunking capability is not required for compliance, but the purchase of radio with this capability or one capable of being upgraded to this capability would normally be recommended.