

What Are the Benefits of P25?

From the beginning, P25 has targeted four primary objectives:

- *Allow effective, efficient, and reliable intra-agency and inter-agency communications*

... so organizations can easily implement interoperable and seamless joint communication in both routine and emergency circumstances.

- *Ensure competition in system life cycle procurements*

... so agencies can choose from multiple vendors and products, ultimately saving money and gaining the freedom to select from the widest range of equipment and features.

- *Provide user-friendly equipment*

... so users can take full advantage of their radios' lifesaving capabilities on the job – even under adverse conditions – with minimal training.

- *Improve radio spectrum efficiency*

... so networks will have enough capacity to handle calls and allow room for growth, even in areas where the spectrum is crowded and it's difficult for agencies to obtain licenses for additional radio frequencies.

What is the Status of P25 Today?

P25 systems are available today and being deployed globally. Many organizations have mandated that new land mobile radio system purchases follow P25 standards. P25 is ongoing. The standard continues to evolve as the needs of users and the capabilities of new technology advance. Both users and manufacturers have an important role to play in shaping P25.

What is Required for P25 Compliance?

At a minimum, a P25 radio system must provide interoperability with these mandatory P25 Standard components:

- *The Common Air Interface (CAI) specifies how information is coded, transmitted and received over the air.*

It enables users to interoperate and communicate digitally across networks, agencies, and vendors.

- *The Improved Multi-Band Excitation (IMBE) [vocoder](#) converts speech into a digital bit stream.*

Test panels judged IMBE as the coding scheme most successful at making male and female voices audible against background noises such as moving vehicles, sirens, gunshots, and traffic noise – the conditions of public safety use.

P25 has also defined standard modes of operation to enable multi-vendor interoperability for additional system functions: trunking, encryption, over-the-air rekeying, to name a few.

A set of defined system interfaces allow the P25 system elements to communicate with host computers, data terminals and the public switched telephone network (PSTN).

Looking to the Future

There are two phases of P25 development:

- Phase 1 is completed.
 - It specifies a 12.5 kHz bandwidth.
- Phase 2 is in development.

It will use a 6.25 kHz equivalent bandwidth to allow better spectrum efficiency and benefit a greater number of users.