ICOM

What is Radio Trunking?

Radio trunking is a method employed on medium to large business radio systems to make the best use of the scarce radio channels that are available in the UK today. On a conventional medium to large radio system, businesses will normally use several channels. This usually means that communication within each user group on the system is often on the same channel. The restricting of access to a particular channel for a user group means that communication between groups can be difficult or impossible.

The pressure on radio channels is such that channels are often reused and it may be necessary to share with other user groups, possibly from an unrelated organisation. In this situation, when a shared channel is in use by a particular user group other users must wait until the conversation is finished. At the same time, some channels might be free but the user cannot make use of them.

A Trunked radio system makes use of several radio channels centrally managed by a Trunked Controller to provide communication between radio users. When a user makes a call, the Trunked Controller automatically allocates a free channel and sends a message to the radio units involved in the call instructing them to change to the free channel. This means that a conversation can be made if ANY CHANNEL is available, unlike a conventional system where the user must wait for a particular channel to be available. This process is entirely automatic and transparent to the user. Call setup is very fast, very similar to cellphone operation.

The Trunked radio technique provides a comprehensive control system, with the added benefit of individual calling of mobile and hand portable units. The introduction of computer control into the management of the process has the added benefit that a variety of system features can be employed to tailor the operation of the system and mobile fleets to the requirement of the user. In addition it is possible to interconnect trunking systems on different sites and permit the mobile fleet to roam from site to site, providing wide area coverage and connect to landline or mobile phones.

What are the benefits of a Trunked Radio System?

Extremely Flexible
Trunked radio combines many of the functions of a mobile telephone with the best of conventional PMR. Calls are made on a one to one or one to group basis with user friendly confidence tones to inform the user of the progress of the call. If the called unit is not in range, the caller is informed. Once the call is connected, only those parties involved in the call will hear the conversation.

Trunked radio equipment exploits the power of the Trunked principle to serve the requirements of the mobile user. When calls are received while the user is not present, the details of the callers will be

stored so that the call can be returned at a convenient time. Facilities to pass messages to the displays of other radios are included, reducing the need for routine voice communications.

Connect to a Telephone Network
Trunked radios are often equipped to make and receive calls between the Trunked radio network and private or public telephone networks (where supported by the Trunked network operator). The required number may be dialled on the keypad, or recalled from a pre-programmed list of approved numbers.

Spectrum Efficient
In a Trunked radio system, all radio users share all channels. In a Trunked system, no channel stays unused when a need for communication exists. The automated Trunking controller immediately allocates a free channel when requested.

Private
Users only hear the conversation intended for them because they have exclusive use of the channel. At all other times, their radio will be silent. Since communication in a Trunked radio communication system happens on an arbitrary channel selected by the system, it becomes difficult for unauthorised users to monitor the voice communication of a particular group of users.

The degree of privacy can be even further enhanced on a Trunked system by adding voice encryption, if supported by the system architecture.

System Reliability
A fault on a conventional system can take out all of the users on that channel and they are prevented from communicating unless they all know in advance what channel to switch to if another is available. This situation never occurs in a Trunked radio system. If a repeater station falls out, the Trunking controller registers the fallout and does not assign the repeater as a voice channel, until it has been repaired or the disturbance has disappeared.

Cost Effective
It is possible to buy airtime on existing systems - no need to own your own site or system. Most Trunked network operator's charge a fixed monthly rate based on the area of service provided. A fleet manager will be able to budget exactly for the cost of his communications - no nasty surprises when the airtime bill arrives!

Wide Area Coverage
There are national or regional systems which users are able to buy space on - so gain wide radio coverage without the expense of hardware or licensing.

Count on us!