Reference number	O.G CC 097
Date	August 2026

NFCC
National Fire
Chiefs Council

Operational Guidance: Planned review

Operational Guidance topic
Knowledge Base: Fireground radios guidance
Change originator
The review of this product was originally initiated following the Grenfell Tower Inquiry Phase 2 report recommendation 113.61: We recommend that firefighters be trained to respond appropriately to the loss of communications and to understand how to restore them. In response to this recommendation, GTI CC 004 - Loss of radio communications at the incident ground was published August 2026. This change request also identified the need to strengthen guidance relating to communication planning, testing and contingency arrangements. Concurrently, NFCC organisational learning submissions and engagement with NFCC National Lead for Radio Communications identified additional evidence relating to the performance of incident ground radio communications. This highlighted concerns regarding communication system limitations, intraoperability and whether existing radio specifications and assurance arrangements consistently support operational requirements. Collectively, this evidence demonstrated the need for a full review of this product to ensure it reflects current operational risks, emerging learning and developments in communication technology.
Change requested
Evidence from GTI CC 004, NFCC organisational learning submissions and engagement with NFCC National Lead for Radio Communications identified a number of issues relating to incident ground radio communications. These include: • The need to establish and test communication strategies and include this with SSRI. • Ensuring personnel understand the limitations of communication systems and the actions required if communications degrade or fail. • Communication failures occurring in complex operational environments, including high-rise incidents, breathing apparatus operations and structures where radio propagation may be restricted. • Variations in radio capability, performance and intraoperability across the sector. • A need to improve strategic understanding of equipment limitations and the suitability of radio systems for operational use. Limited reporting of communication-related near-miss events, reducing the available evidence base to support learning and continuous improvement.

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Changes proposed	Rationale for change
Convert the current Knowledge Base product into Operational Guidance	To raise the profile of the guidance, including provision of strategic actions that will encourage fire and rescue services to include relevant content in their individual guidance, procedures and training
Retitle guidance to *Incident ground radios*	The term *incident ground* is more inclusive than the term *fireground*
Replicate any existing guidance content relating to loss of radio communication	• Ensure all content can be found in one location
Review and update technical content relating to incident ground radios	• Ensure the guidance reflects current communication technologies, known system limitations and national operational learning
Governance process	
☐ Endorsed by NFCC Guidance and Training Scrutiny Panel Click or tap to enter a date. ☐ Recommended by NFCC Operational Guidance Forum Click or tap to enter a date. ☐ Approved by NFCC Operational Preparedness, Response and Resilience Committee Click or tap to enter a date.	
Impacts on other NFCC products	
• Incident command • SSRI • Confined spaces - Below ground structures • Major incidents	

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Operational Guidance: Operation Communications

Source material: Knowledge *Base – Fireground radios guidance*

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Introduction

Incident ground radio communications are a critical component of safe and effective operational activity. They support command, coordination and the communication of risk-critical information between personnel operating at incidents. This guidance provides information about the regulatory framework, technical considerations and operational arrangements associated with incident ground radio communications. It also supports fire and rescue services in maintaining effective, resilient and intraoperable communication capabilities.

Risk management plan

Each fire and rescue authority must develop their strategic direction through their risk management plan. To determine the extent of their services, strategic managers will consider their statutory duties and the foreseeable risk within their area.

Work to identify risk and prepare operational plans should be carried out with all stakeholders in mind, including local emergency planning groups, and should be informed by the fire and rescue service risk management plan.

Responsibility of fire and rescue services

Fire and rescue services have legal and regulatory duties in relation to foreseeable hazards and the control measures used to reduce the risks arising from those hazards. This includes developing policies and procedures, and providing personnel with information, instruction, training and supervision.

This guidance sets out to provide fire and rescue services with sufficient knowledge about the potential hazards their personnel could encounter when attending incidents and using fire ground radios. Fire and rescue services should ensure their policies, procedures and training cover all of the hazards and control measures contained in this guidance.

Components and terminology of Operational Guidance

Components

The main components of NFCC Operational Guidance are:

- Hazards
    - Hazard knowledge
- Control measures
    - Control measure knowledge
    - Strategic actions
    - Tactical actions

Hazards are events or situations with the potential to cause harm, including:

- Physical or psychological harm

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- Death
- Damage to or losses of property
- Impact on the environment
- Disruption to economic, social or political structures

There is a distinct difference between a hazard and a risk. A risk is the measure of the significance of a potential harm, taking into account its assessed likelihood and impact. As it is not possible to assess what the level of risk will be for a specific incident, this is a word that is used sparingly in the guidance.

Hazard knowledge describes the hazard, and what the potential harm may be.

Control measures are used to reduce the likelihood of exposure to a hazard, or to mitigate the impacts of that exposure. Control measures in guidance can be compared to tools in a toolbox; for some tasks you will only need one but for other tasks you will need many.

Control measure knowledge describes why and when a control measure may be appropriate for the hazard it relates to.

Strategic actions describe what should be considered and included in a fire and rescue service's policies, procedures and training as part of their pre-planning for incidents. Strategic actions should also assist services in identifying the actions that will help them to meet their legislative requirements. They can be recorded and analysed by using the Strategic Gap Analysis tool.

Tactical actions describe the activities that are taken by personnel at incidents. Most of the tactical actions are for the incident commander to either take or delegate within the command structure.

Terminology

The following definitions have been applied to the Operational Guidance:

- **'Must'**– actions that are required by legislation. For example:
  - An assessment must be carried out to identify whether the space is confined. Some spaces will become confined spaces because of the work to be carried out in them or because of changes in their use or changes to the level of enclosure.
- **'Should'**– actions that are recommended. If policies or procedures follow a different action, or do not include the recommended action, they are likely to attract criticism; this could be at managerial level or in a review process such as an inquest. For example:
  - A face mask fit test should be carried out as part of the initial selection of the respiratory protective equipment, and it is good practice to ensure testing is repeated on a regular basis.
- **'May'**, **'can'** or **'could'**– used when an action does not fall into either of the categories above, but is considered to be an appropriate method of controlling or eliminating the hazard. For example:

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- It may be necessary to reposition fire and rescue service vehicles if they are at risk from the incident, for example due to firespread, flooding or collapsed structures.

Hazard – Ineffective incident ground communications

HAZARD KNOWLEDGE

Incident ground radio communications support command, co-ordination and the exchange of risk-critical information between personnel operating at incidents. Effective radio communications are essential for maintaining situational awareness and supporting safe and effective operational activity.

Ineffective incident ground radio communications may occur when radio systems do not provide reliable transmission or reception of information required to support operational activity. This may be a result of:

- limitations of communication systems
- equipment failure
- radio-frequency interference
- poor signal propagation
- incompatible radio technologies
- inadequate intraoperability arrangements

Incident ground radio communications may also be affected by incidents involving:

- large or complex structures
- below-ground structures or environments (for example basements or tunnels)
- tall buildings
- reinforced concrete construction
- steel-framed buildings
- dense urban environments
- deep-seated incidents within large complexes
- adverse weather conditions

Ineffective incident ground radio communications may result in personnel being unable to transmit, receive or acknowledge risk-critical information. This can affect incident command, co-ordination of incident resources, the safety of personnel and effectiveness of operational activity.

The impacts of ineffective incident ground radio communications may include:

- delays in personnel communicating risk-critical information to the incident commander
- inability for personnel to request, provide or receive assistance

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- reduced situational awareness for all personnel
- failure to communicate emergency messages or risk-critical changes in incident conditions from the incident commander
- delayed or failure to communicate messages regarding emergency evacuation, tactical withdrawal or a firefighter emergency
- delays in implementing or actioning changes to tactical plans
- reduced interoperability between all responding emergency services
- escalation of the incident and increased damage to:
  - property
  - infrastructure
  - the environment

For further information, refer to Incident command: Poorly managed incident – Effective communication at the incident ground

Control measure – Organisational preparedness NEW

CONTROL MEASURE KNOWLEDGE

Legislation

Wireless telegraphy licences are issued by the Office of Communications (Ofcom) under Section 8 of the Wireless Telegraphy Act 2006. The Act authorises the licensee to establish and use stations and to install or use apparatus for wireless telegraphy, subject to certain terms, provisions and limitations. Fire and rescue services are licensed to use nationally allocated frequencies within the ultra high frequency (UHF) 450-470MHz band for incident ground communications.

For further information refer to: Wireless Telegraphy Act 2006

Ofcom

Ofcom is the UK communications regulator. It regulates television, radio and video-on-demand sectors, fixed-line telecoms, mobile phones, postal services and the airwaves over which wireless devices operate. Ofcom operates under several Acts of Parliament, including the Communications Act 2003 and the Wireless Telegraphy Act 2006, and has powers to enforce competition law alongside the Competition and Markets Authority.

For further information, refer to: Ofcom.org.uk

Licence fees

Fire and rescue services pay Ofcom for access to licensed frequencies.

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Fire and rescue services requiring channels or frequencies in addition to those licensed for incident ground voice communications should contact Ofcom. Further information on licencing fees, the fees for area-defined and technically assigned licences, refer to the Ofcom website: Business Radio Licences

A copy of the Wireless Telegraphy General Licence Conditions booklet can be accessed on the Ofcom website: General Licence Conditions Booklet

Public Safety Spectrum Policy Group (PSSPG)

The Public Safety Spectrum Policy Group (PSSPG) is a standing government inter-departmental committee on emergency and public safety spectrum matters. It reports to the UK Spectrum Implementation Group (SIG) and comprises representatives from Ofcom, government departments and devolved administrations. Other relevant organisations may be invited to attend as required. The PSSPG advises on spectrum requirements and policy affecting UK emergency services and public safety users.

For further information, refer to: Public Safety Spectrum Policy Group: Terms of reference

European Telecommunications Standards Institute (ETSI)

The European Telecommunications Standards Institute (ETSI) is one of several standards bodies that produce the standards applicable to information and communications technologies. Compliance with recognised telecommunications standards help to support intraoperability between products from different manufacturers.

All equipment, including components within an assembly, should comply with the relevant ETSI or approved technical specifications, applicable UK legislative requirements for radio equipment, and any relevant licensing requirements. Equipment should be appropriately conformity marked where required.

Several different digital standards are available for conventional two-way radios, and it is important to understand that these different technologies are not necessarily compatible with one another. The two main standards are Digital Mobile Radio (DMR) and Digital Private Mobile Radio (dPMR). Both are based on open digital radio standards produced by the ETSI.

For further information, refer to: ETSI Standards: Digital Mobile Radio and ETSI Standards: Private Mobile Radio

Some manufacturers use other digital technologies, such as NXDN. NXDN is an open standard common air interface (CAI) technical protocol for mobile communications developed jointly by Icom Incorporated and Kenwood Corporation.

For further information see: NXDN Forum

Very high frequency radio channels

Very high frequency (VHF) channels in the 80MHz band are no longer licensed to fire and rescue services for incident ground communications. Fire and rescue services should disregard

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any previously published guidance relating to VHF channels and use the nationally allocated UHF incident ground frequencies.

Channel sharing

Subject to the local chief fire officer's approval, non-local authority fire services are permitted to use at-incident channels to allow tactical interoperability at incidents and for training. Such organisations include:

- defence Fire Risk Management Organisation
- airport fire services
- works fire services

The chief fire officer must be satisfied that radio interoperability will improve operational effectiveness or personnel safety at incidents and that adequate arrangements exist to prevent the misuse of radio channels. Any use is restricted to incidents involving local authority fire and rescue services and to the permitted user, who must comply with the terms of the licence.

Incident ground radio frequencies

Incident ground radio communications operate using nationally allocated frequencies within the UHF incident ground spectrum. Fire and rescue services should ensure that radio equipment remains compatible with current Ofcom licensing requirements, national channel plans and associated technical standards.

Fire and rescue services may define additional channels using licensed frequencies for operational requirements such as scanning channels or site-specific repeaters.

See Appendix A for UK fire service standard DMR Tier II code plug and Appendix B for National incident ground radio channel plans and frequencies. These channel plans suggest primary uses for the Ofcom allocated frequencies that will support interoperability at cross-border incidents and national deployments.

For further information on the correct channel programming of duplex channels refer to Fixed site and portable repeaters.

ATEX-approved intrinsically safe equipment

This control measure should be read in conjunction with Use intrinsically safe equipment

A suitable and sufficient risk assessment under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) may identify the need for incident ground radio equipment with appropriate ATEX and/or intrinsically safe (IS) certification. Equipment should be certified for the environments in which it is expected to operate.

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In the DSEAR, an explosive atmosphere is defined as ‘a mixture of dangerous substances with air under atmospheric conditions in the form of gases, vapours, mist or dust which, after ignition has occurred, combustion spreads to the entire unburned mixture.’

For further information see: HSE – The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR)

When specifying intrinsically safe radio equipment, fire and rescue services should consider:

- foreseeable operational risks
- the likely explosive atmosphere classification
- compatibility with breathing apparatus communications systems
- operational performance requirements
- interoperability requirements
- manufacturer certification and approved configurations

Certification should extend to all components that form part of the approved radio system, including:

- batteries
- remote speaker microphones
- headsets
- chargers
- other approved accessories

Fire and rescue services should ensure that intrinsically safe radio equipment remains suitable for operational use in the environments where it may be deployed. This may include industrial sites, petrochemical facilities, fuel installations and other locations where flammable gases, vapours or combustible dusts may be present.

Fire and rescue services should be aware that some intrinsically safe radio systems may have operational limitations when compared with non-certified equipment. Where identified, these limitations should be considered during equipment specification, testing, training and operational assurance activities.

Radio technical specifications; interoperability and intraoperability

Fire and rescue services should ensure that incident ground radio equipment is specified, configured and maintained to support safe, effective and intraoperable communications across the range of operational environments in which it may be used. Equipment specifications should reflect operational requirements, foreseeable risks and the need to maintain compatibility with neighbouring services and national arrangements.

Incident ground radio equipment should:

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- operate within the nationally allocated UHF incident ground spectrum in the 457MHz band
- support both analogue FM and Digital Mobile Radio (DMR Tier II) operation
- be compatible with standard digital codeplug and channel plan
- provide clear and intelligible audio for incident ground operations, including use with breathing apparatus
- be compatible with approved accessories, remote speaker microphones and associated communications equipment
- be capable of operating in challenging environments, including high-rise buildings, basements and reinforced concrete structures

Effective interoperability supports communication between fire and rescue services attending cross-border incidents, national deployments and other incidents involving personnel from multiple organisations. Incompatible radio technologies, codeplug configurations, channel plans and operating modes may reduce interoperability and affect operational effectiveness.

Fire and rescue services should seek to maintain interoperability through nationally recognised communication standards, compatibility with the standard digital codeplug and channel plan, compatible equipment configurations and regular interoperability testing with neighbouring services and partner organisations. Incident ground radio equipment should support operation in both analogue FM and DMR Tier II modes where interoperability requirements have been identified.

Interoperability arrangements should consider:

- mutual aid responses
- national resilience deployments
- cross-border incidents
- multi-agency operations
- use of repeaters and communications infrastructure
- compatibility of accessories and supporting systems

STRATEGIC ACTIONS

Fire and rescue services must:

- Comply with legislation, regulations and licensing conditions relating to incident ground communication
- Obtain and maintain the licences required for the use of incident ground radio frequencies

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- Ensure incident ground radio equipment complies with applicable legislative requirements, licence conditions and mandatory technical standards
- Ensure suitable and sufficient assessments under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) where the selection and use of intrinsically safe radio equipment may be required

Fire and rescue services should:

- Maintain compatibility with nationally allocated incident ground radio frequencies, channel plans and associated technical standards
- Ensure incident ground radio equipment is specified, configured and maintained to support safe, effective and interoperable communications
- Ensure incident ground radio equipment specification reflects operational requirements, foreseeable risks and the need to maintain compatibility with neighbouring services and national arrangements
- Maintain compatibility with nationally allocated incident ground radio frequencies, the standard digital codeplug and the national channel plan
- Review intraoperability arrangements with neighbouring services and partner agencies through regular testing and exercising
- Consider interoperability and compatibility requirements when specifying, introducing, replacing or upgrading incident ground radio equipment
- Maintain interoperability through nationally recognised standards, compatible equipment configurations and interoperability testing
- Ensure intrinsically safe radio equipment and associated accessories are suitable for the operational environments in which they are expected to be used

Control measure – Radio communications system limitations and performance NEW

CONTROL MEASURE KNOWLEDGE

Radio-frequency interference

Radio-frequency interference can arise from several sources, including:

- atmospheric conditions
- nearby radio users
- use of other electronic equipment such as:
    - mobile phones
    - Wi-Fi equipment and wireless networks
    - Bluetooth devices

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- CCTV transmission systems
- unauthorised radio transmitters
- faulty electrical equipment
- generator systems and electrical distribution equipment

Symptoms of radio-frequency interference may include:

- reduced range
- distorted audio
- intermittent communications
- unwanted signals or noises
- an inability to receive messages

The incident commander should consider whether the source of radio-frequency interference is locally generated and whether operational communications can be maintained using alternative channels, repeaters or other approved communication arrangements.

For further information on an effective communication strategy, communication degradation, and contingency (fallback) arrangements, this guidance should be read in conjunction with Incident command: Poorly managed incident – Effective communication at the incident ground

If appropriate, the incident commander should ensure that suspected radio-frequency interference is reported to Ofcom through the appropriate channels as detailed in their service's guidance. For further information on reporting interference to Ofcom, refer to: Ofcom: Interference to radio equipment

Power output and radio propagation

The effectiveness of incident ground radio communications is influenced by a range of factors including transmitter power output, antenna performance, receiver sensitivity and environmental conditions. Fire and rescue services should ensure radio equipment complies with current licensing requirements and relevant technical standards.

Radio waves spread from an antenna horizontally and in a straight line, reducing in intensity by a factor of four each time the distance doubles. This is known as 'free space path loss'. Radio signals weaken as the distance between radios increases. Environmental conditions and physical obstructions, such as hills, trees and buildings, may further reduce signal strength, degrade audio quality or restrict radio coverage.

The relationship between power output and radio propagation is complex and services should seek specialist technical advice on the subject Increasing transmitter power may improve radio coverage in some circumstances but can affect battery performance and may be subject to licensing restrictions.

When considering the power output of incident ground radios, fire and rescue services should also be aware of the relevant health and safety considerations relating to radio frequency (RF)

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electromagnetic radiation. Risk can be reduced by factors such as the amount of time a device is transmitting and the use of remote speaker microphones. For further information see: HSE non-ionising radiation FAQs

Analogue and digital radios

Incident ground radios for voice communications were originally operated using analogue radio technology. The introduction of digital radio technology has led many fire and rescue services to procure and use Digital Mobile Radio (DMR), while some services continue to operate analogue systems. Incident ground radio communications may therefore involve a combination of analogue and digital radio technologies.

Analogue and digital radios operating on the same frequency are not compatible and will cause interference if used within range of each other. Messages transmitted using one technology may not be received by radios using the other. This may affect operational communications and interoperability during cross-border incidents, mutual aid responses and national resilience deployments.

Analogue and digital radio technologies may be operating within the same area, such as at service boundaries, cross-border incidents or mutual aid responses. In these situations, fire and rescue services should ensure that personnel understand the radio channels in use and any interoperability implications associated with analogue and digital operation. This should include clear identification of the channels being used and whether they are configured for analogue or digital communications.

For further information regarding interoperability, refer to: Radio technical specifications and intraoperability

Fixed-site and portable repeaters

In simplex mode, radios communicate directly with each other (direct radio-to-radio), transmitting and receiving on the same frequency. However, it may not always be possible to use radios in simplex mode across an entire incident ground. Signal strength and coverage may be reduced by distance, environmental conditions and physical obstructions between radios.

Repeaters, sometimes referred to as talk-through base stations, can be used to improve radio coverage where direct radio-to-radio communications may be restricted. They receive and rebroadcast radio transmissions between users. When radios use a repeater to communicate, they operate in half-duplex mode. In half-duplex mode, the radios transmit and receive using different frequencies, although this is invisible to the user.

Repeaters may be permanently installed in fixed locations, such as shopping centres, tall buildings, tunnels and hospitals. Fixed repeaters may provide more predictable coverage due to planned installation and infrastructure arrangements, giving fire and rescue services the benefit of knowing the provided coverage before they need to be used.

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Portable repeaters may be battery powered and rapidly deployed to locations where additional radio coverage is required.

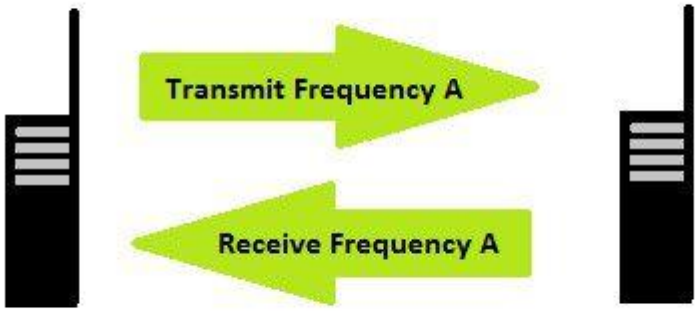


Figure: Radios operating in simplex mode (direct radio-to-radio)

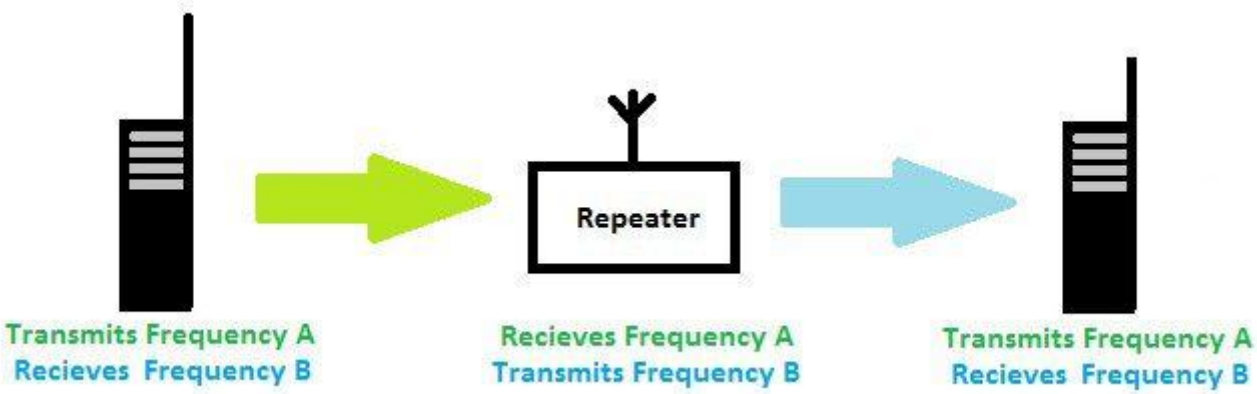


Figure: Radios operating in half-duplex mode (via a repeater)

For optimum coverage, repeaters are usually positioned centrally between radio users. Radios must be within the repeater's coverage range to access its functionality. If two radios are configured to operate using a half-duplex channel and no repeater is available, they may be unable to communicate even when they are within close proximity of each other. Depending on the model and configuration, repeaters may be operated in analogue or digital mode. Radios accessing the repeater must be configured to operate using the same mode.

Some repeater systems can be connected through communications networks to provide radio coverage across wider geographical areas. In these arrangements, radio transmissions may be relayed between multiple connected repeaters to extend communication coverage. Not all radio systems support this functionality, and fire and rescue services should ensure compatibility and understand any associated operational limitations.

In the UK, repeater base stations should transmit on the lower frequency and receive on the higher frequency. Radios used with repeaters should therefore be programmed explicatory in the opposite configuration. (For further information, refer to incident ground radio frequencies)

Fire and rescue services should consider the resilience of the repeater equipment they may rely on for effective operational communications. Incident commanders should consider contingency (fallback) arrangements that can be implemented in the event of a communications breakdown (for example repeater power failure).

STRATEGIC ACTIONS

Fire and rescue services should:

- Ensure personnel understand the causes, symptoms and impacts of radio-frequency interference
- Establish arrangements for investigating, recording and reporting radio-frequency interference
- Ensure personnel understand the effects of environmental conditions, distance and physical obstructions on radio communications
- Seek specialist technical advice where appropriate regarding power output, radio propagation and communication system performance
- Make personnel aware of relevant health and safety considerations associated with radio-frequency electromagnetic fields
- Ensure personnel understand the interoperability implications associated with the use of analogue and digital radio technologies
- Ensure personnel understand the capabilities, dependencies and limitations of fixed-site and portable repeater systems
- Consider the resilience, availability and operational limitations of repeater systems used to support operational communications

TACTICAL ACTIONS

Incident commanders should:

- Consider whether suspected radio-frequency interference is locally generated and whether operational communications can be maintained using alternative channels, repeaters or other approved communication arrangements
- Ensure suspected radio-frequency interference is reported to Ofcom through the appropriate channels
- Ensure personnel understand the radio channels in use and any interoperability implications where analogue and digital radio technologies may be operating within the same area
- Consider the operational limitations of repeater systems where they are used to support incident ground communications
- Consider communication contingency (fallback) arrangements if repeater systems become unavailable or ineffective

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Appendix A - Digital Mobile Radio (DMR) Standards

Digital Mobile Radio (DMR) is a digital radio standard specified for business mobile radio users, developed by the European Telecommunications Standards Institute (ETSI) and first ratified in 2005.

The standards that define DMR consist of four documents covering DMR Tier I, II and III. These can be downloaded free of charge from the ETSI website. Tier I is designed for unlicensed radio systems and Tier III is based around digital trunked radio. The DMR standard tiers (Tier I, Tier II and Tier III) are all incompatible. Tier II is the most suitable for incident ground communications.

- General system design TR 102 398
- Part 1: DMR air interface (AI) protocol – TS 102 361-1
- Part 2: DMR voice and generic services – TS 102 361-2
- Part 3: DMR data protocol – TS 102 361-3
- Part 4: DMR trunking protocol – TS 102 361-4

Tier II covers licensed conventional radio systems, mobile phones and hand portable radios operating in private mobile radio (PMR) frequency bands from 66-960MHz. The standard is aimed at users who need spectral efficiency, advanced voice features and integrated internet protocol (IP) data services in licensed bands for high-power communications. ETSI DMR Tier II specifies two-slot Time Division Multiple Access (TDMA) in 12.5 kHz channels.

As well as ensuring that the correct digital standard is being used, several other parameters need to be correct to provide compatibility on a given channel (frequency), including colour code, time slot, talk-group identification and encryption, although regulations require that transmissions are in clear speech (i.e. not encrypted).

Digital incident ground radios are configured by software in the radio, referred to as a code plug. The overarching procurement principle for fire and rescue services is to maintain interoperability with all neighbouring fire and rescue services, wherever possible.

When specifying DMR Tier II incident ground radio systems, fire and rescue services should consider:

- **Frequency**: Based on current nationally allocated incident ground radio frequencies and channel plans.
- **Digital colour code:** 16 digital colour codes are available. A code is used to allow different systems or organisations to ‘share’ a frequency without hearing each other. Only one system can use the frequency time slot at any given time.
- **Group ID:** A group ID allows multiple talk groups to share the same colour code. Only one talk group can use the colour code/frequency time slot at a time.
- **Slot number:** DMR allows a 12.5 kHz channel to be sliced into two time slots. Users on time slot one and time slot two can use the frequency simultaneously, effectively creating

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two channels per 12.5 kHz assignment. N.B. In simplex mode, only time slot one should be used.

UK Fire service standard DMR Tier II code plug

Digital channels

Channel 1 – General incident – digital

- Mobile Tx: 457.0375 MHz
- Mobile Rx: Not specified
- CC: 1
- Slot: 1
- Group ID: 901

Channel 2 – Portable repeaters – digital

- Mobile Tx: 462.5875 MHz
- Mobile Rx: 457.0875 MHz
- CC: 2
- Slot: 1
- Group ID: 901

Channel 3 – BA communications – digital

- Mobile Tx: 457.4875 MHz
- Mobile Rx: Not specified
- CC: 3
- Slot: 1
- Group ID: 901

Channel 4 – Command support – digital

- Mobile Tx: 457.1875 MHz
- Mobile Rx: Not specified
- CC: 4
- Slot: 1
- Group ID: 901

Channel 5 – Fixed site repeaters – digital

- Mobile Tx: 462.6375 MHz
- Mobile Rx: 457.1375 MHz
- CC: 5
- Slot: 1
- Group ID: 901

Channel 6 – BA sector/functional roles – digital

- Mobile Tx: 457.2375 MHz
- Mobile Rx: Not specified

DRAFT

- CC: 6
- Slot: 1
- Group ID: 901

Channel 7 – Service defined – digital

- Mobile Tx: 450.1000 MHz
- Mobile Rx: Not specified
- CC: 7
- Slot: 1
- Group ID: 901

Channel 8 – Incident defined – digital

- Mobile Tx: 464.1000 MHz
- Mobile Rx: Not specified
- CC: 8
- Slot: 1
- Group ID: 901

Analogue channels

Channel 9 – General incident – analogue

- Mobile Tx: 457.0375 MHz
- Mobile Rx: Not specified

Channel 10 – Portable repeaters – analogue

- Mobile Tx: 462.5875 MHz
- Mobile Rx: 457.0875 MHz

Channel 11 – BA communications – analogue

- Mobile Tx: 457.4875 MHz
- Mobile Rx: Not specified

Channel 12 – Command support – analogue

- Mobile Tx: 457.1875 MHz
- Mobile Rx: Not specified

Channel 13 – Fixed site repeaters – analogue

- Mobile Tx: 462.6375 MHz
- Mobile Rx: 457.1375 MHz

Channel 14 – BA sector/functional roles – analogue

- Mobile Tx: 457.2375 MHz
- Mobile Rx: Not specified

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Channel 15 – Service defined – analogue

- Mobile Tx: 450.1000 MHz
- Mobile Rx: Not specified

Channel 16 – Incident defined – analogue

- Mobile Tx: 464.1000 MHz
- Mobile Rx: Not specified

User-definable channels

Channel 17+

- User-definable channels

Appendix B – National Incident Ground Radio Channel Plans

Analogue incident ground radios channel plan

Channel 1 – General incident

- Tx frequency: 457.0375 MHz
- Rx frequency: 457.0375 MHz

Channel 2 – Portable repeaters

- Tx frequency: 462.5875 MHz
- Rx frequency: 457.0875 MHz

Channel 3 – Breathing apparatus (BA) communications

- Tx frequency: 457.4875 MHz
- Rx frequency: 457.4875 MHz

Channel 4 – Command support

- Tx frequency: 457.1875 MHz
- Rx frequency: 457.1875 MHz

Channel 5 – Fixed-site repeaters

- Tx frequency: 462.6375 MHz
- Rx frequency: 457.1375 MHz

Channel 6 – BA sector/functional roles

- Tx frequency: 457.2375 MHz
- Rx frequency: 457.2375 MHz

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Channel 7 – Service defined

- Tx frequency: 450.1000 MHz
- Rx frequency: 450.1000 MHz

Channel 8 – Incident defined

- Tx frequency: 464.1000 MHz
- Rx frequency: 464.1000 MHz

Digital incident ground radios channel plan

Channel 1 – General incident

- Tx frequency: 457.0375 MHz
- Rx frequency: 457.0375 MHz

Channel 2 – Portable repeaters

- Tx frequency: 462.5875 MHz
- Rx frequency: 457.0875 MHz

Channel 3 – Breathing apparatus (BA) communications

- Tx frequency: 457.4875 MHz
- Rx frequency: 457.4875 MHz

Channel 4 – Command support

- Tx frequency: 457.1875 MHz
- Rx frequency: 457.1875 MHz

Channel 5 – Fixed site repeaters

- Tx frequency: 462.6375 MHz
- Rx frequency: 457.1375 MHz

Channel 6 – BA sector/functional roles

- Tx frequency: 457.2375 MHz
- Rx frequency: 457.2375 MHz

Channel 7 – Service defined

- Tx frequency: 450.1000 MHz
- Rx frequency: 450.1000 MHz

Channel 8 – Incident defined

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- Tx frequency: 464.1000 MHz
- Rx frequency: 464.1000 MHz

Channel 9 – General incident

- Tx frequency: 457.0375 MHz
- Rx frequency: 457.0375 MHz

Channel 10 – Portable repeaters

- Tx frequency: 462.5875 MHz
- Rx frequency: 457.0875 MHz

Channel 11 – BA communications

- Tx frequency: 457.4875 MHz
- Rx frequency: 457.4875 MHz

Channel 12 – Command support

- Tx frequency: 457.1875 MHz
- Rx frequency: 457.1875 MHz

Channel 13 – Fixed site repeaters

- Tx frequency: 462.6375 MHz
- Rx frequency: 457.1375 MHz

Channel 14 – BA sector/functional roles

- Tx frequency: 457.2375 MHz
- Rx frequency: 457.2375 MHz

Channel 15 – Service defined

- Tx frequency: 450.1000 MHz
- Rx frequency: 450.1000 MHz

Channel 16 – Incident defined

- Tx frequency: 464.1000 MHz
- Rx frequency: 464.1000 MHz

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