

# BAPCO<sup>2020</sup>

The Annual Event for Public Safety Technology

10 - 11 MARCH 2020

RICOH ARENA, COVENTRY

[BAPCO-SHOW.CO.UK](http://BAPCO-SHOW.CO.UK)



## Improving situational awareness and coverage at the scene of a fire or rescue incident



# Agenda

- **Fire ground / Search and Rescue in the UK**
- **Types of incidents**
- **Current communications used**
- **Common requirements**
- **Communication challenges**
- **Possible enhancements**
- **Situational Awareness & Coverage**

- **Fire & Rescue Services**
  - England & Wales/Scotland/Northern Ireland (Fire/urban SAR/Chemical hazards/RTC's)
  - SAR teams (Maritime/Costal/lowland and Mountain)
  - Conservative/low complexity requirements/Budgets
- **Private Organisations**
  - Examples – airports/shipping ports/oil and gas rigs/power stations
  - More open to additional features

## Types of Incidents

- **Urban/industrial fires**
- **Wildfires**
- **Chemical spillages/gas explosions**
- **Road traffic accidents (RTC's)**
- **Natural disasters (Storms/flooding)**
- **Individuals lost/injured in mountains/lowland areas**



## Current Communications

- **Fire & Rescue - Tetra to an incident in vehicle**
  - Coordinated response/connection to command & control
- **Fire ground communications**
  - Simplex/half duplex UHF analogue or DMR
- **SAR communications**
  - Lowland/mountain – more remote and small teams

## Common Requirements

- **Rugged & Reliable**
  - Temperature extremes
  - Chemical/water ingress
  - Rough handling
- **Easy to use**
  - Few button presses
  - Simple display
- **Easy to Deploy**
  - Rapid
  - Lightweight / easy to carry
- **Specialist accessories**
  - For use with gloved hands/special suits
  - For use with helmets / BA
- **Provide adequate Coverage**
  - Requirement changes constantly
- **Intrinsic safety**
  - ATEX

## Communication Challenges

- **Varied types of incidents**
  - Require fast assessment
- **Need to know what is going on**
  - Actual situation on the ground
- **Need to ensure communications will cover the area concerned**
  - Urban – High rise buildings / basements / tunnels
  - Mountains / forests .etc.

## Possible Enhancements

- **Situational awareness**
  - Ability to convey what the incident really looks like
- **Coverage**
  - Seamlessly improve the range to ensure communications are never lost



## Situational Awareness

- **Currently conveyed by personnel via radio**
- **Body worn camera**
  - Convey incident visually
  - RSM function to enable voice communications
- **Dual mode radios**
- **Biometrics**
  - Convey actual personnel health via IOT

# Situational Awareness – Body worn camera

- **Combined body camera and remote speaker microphone**
- **Standalone Audio/video recording**
- **Wireless connection to radios**
  - Bluetooth PTT & emergency alarm
- **Built in 3G/4G/Wi-Fi**
  - On site real time video



- **Difficult to assess actual coverage requirements**
- **Multiple repeaters**
  - Cabling required to link
- **SFR – Single frequency repeater options**
  - Extending coverage with a single frequency
- **Wireless mesh**
  - Self healing / automatic extension of coverage

## Coverage: SFR – Single Frequency

Repeater



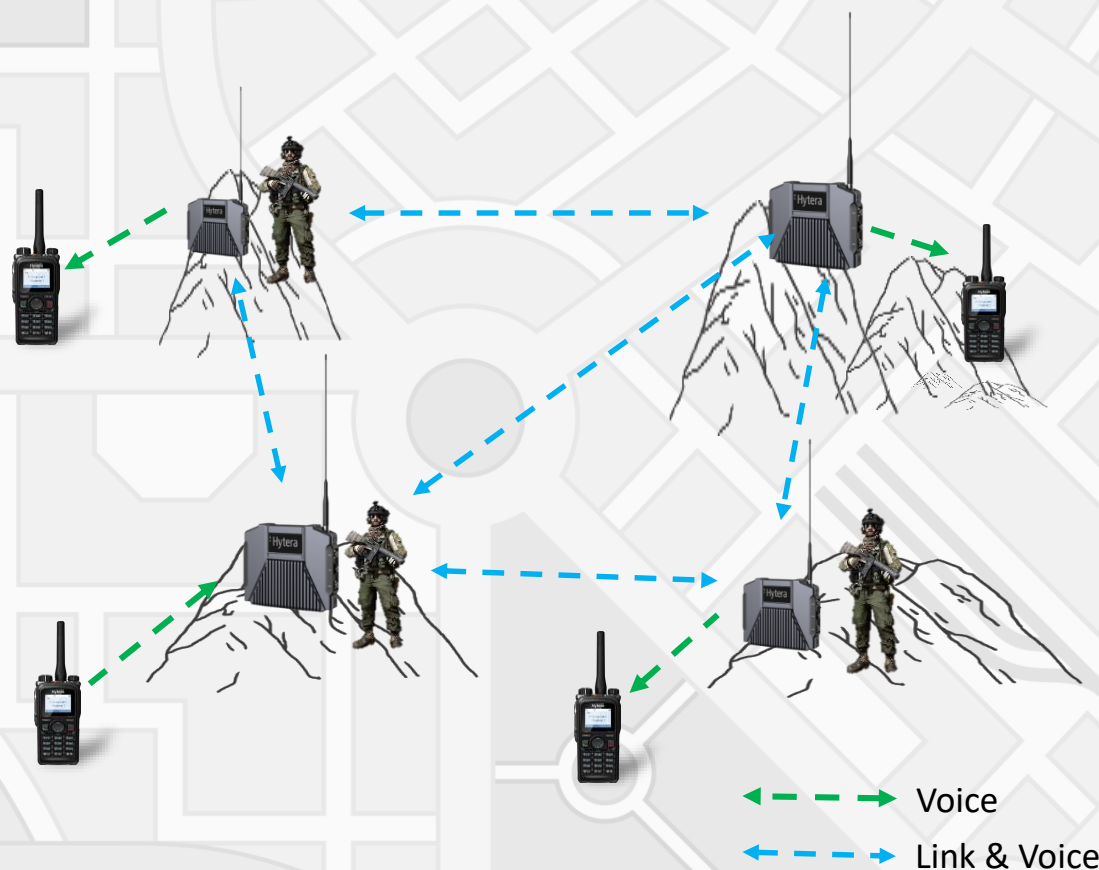
Extend the coverage range without repeaters





## Coverage: Wireless Mesh

- Standard DMR Tier II
- Up to 31 hops
- 136-174MHz & 410-470MHz
- Link Automatic Detection
- GSM Link as Backup
- RF Power 5/10/20W
- IP67 Protection / MIL810G



## Conclusion

- **Complement existing technology**
- **Easy to use – no extra complexity**
- **Rapidly deployable**
- **Suitable for many incidents**
- **Be without impacting safety**

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