Emergency Services Network

UK Progress on 4G LTE for PPDR
November 2017

The Current System - Airwave

Airwave:

- Was the first national public safety (PS) network based on the TETRA technology standard
- Is used by all Emergency Services and agencies in Great Britain
- Is a private network with spectrum loaned to ASL, and uses c3,800 sites to provide full national coverage
- Includes underground and air-to-ground coverage
- Provides PS functionality, coverage, availability & security

But

- Is expensive compared with similar services
- Cannot provide broadband data services
- EU procurement legislation required a re-competition

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The Future System - Emergency Services Network (ESN)

- ESN
  - A new innovative voice and broadband data service based on enhancing a 4G LTE network with c19,000 sites
  - Will deliver integrated critical voice and data with priority
  - Is predominantly for police, fire and ambulance but will also benefit 300+ other organisations
  - Will match Airwave's nationwide coverage
  - Will improve public safety with enhanced functionality
  - Will meet all user, system and commercial requirements but not necessarily in the same way as Airwave

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Cross Government Governance and Funding

- Home Office **(HO)** is the department for police and fire and along with ambulance services makes up the three Emergency Services **(3ES),** in England and Wales for the Police

- In Scotland the Scottish Government is responsible for Police, Fire and Ambulance

- In Wales the Welsh Government is responsible for Fire and Ambulance**.**

- **ESN** is funded by HO, DoH and Scottish and Welsh Governments and will be joined by MOD, DfT, BSS, DBEIS, DCLG, HMRC, DWP, MoJ and local authorities

- There is an MoU between HO and other departments

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Programme Scope / Scale

- **Day 1 of ESN must deliver what is there today on Airwave for all the Users, including: -**

  - Full National Coverage
  - Underground Coverage
  - A2G
  - Direct Mode
  - Gateways
  - Special Coverage

  - **3ES** Users:
    – 44 Police forces / 50 FRS / 13 Ambulance Trusts

  - **Other** User Organisations:
    – non-Home Office police forces
    – Other organisations c300

  - **Control rooms**: c200

  - **Vehicles**: c50,000

  - **Aircraft**: c115

  - **Users**: c300,000

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Programme Scope 2

- **Related projects:**
  - EAS: Ground and A2G infrastructures, transmission, installations and FM
  - Devices: Handheld, Vehicle, NSS and Aircraft (and their installations)
  - Networks: Control Rooms (ICCS, Interworking and DNSP), LUL, Special Coverage

- **Related activities:**
  - General coverage
  - Resilience
  - Testing
  - Security
  - Trials & Pilots

- **Dependent projects:**
  - Crossrail
  - LUL

Systems Integration and the Role of the Authority

Role of the Authority – Systems Integrator / Prime Contractor

- **3 Main Suppliers: -**
  - Delivery Partner – KBR
  - User Services – Motorola
  - Mobile Services – EE
- **But now a number of additional suppliers: -**
  - DNSP Links - Vodafone
  - EAS Site Builds – LendLease
  - Handheld Device – Samsung
  - More to come as procurements complete

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PROGRESS SO FAR

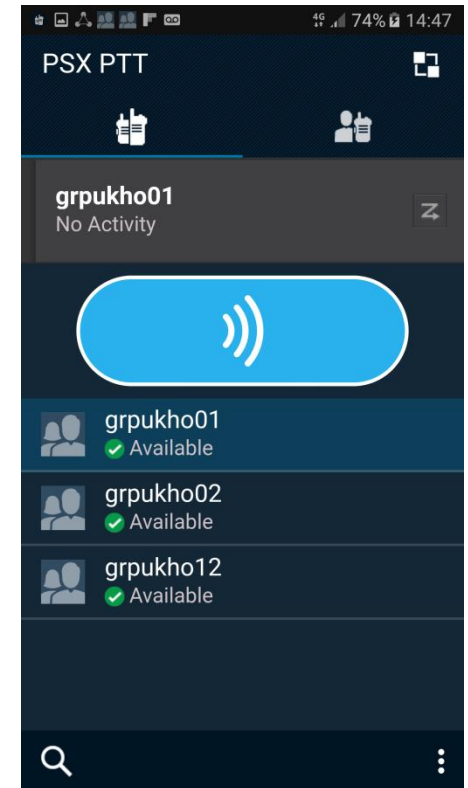# DEVICES AND APPLICATIONS PROGRESS

- Framework Contract signed for Handheld devices with Samsung

- Demonstration of priority and pre-emption mechanisms on commercial EE LTE network

- As part of the integration between Motorola and EE a VoLTE call has successfully been between EEs commercial network and ESN

- Demonstrated basic telephony and internet browsing from a device using an ESN SIM card through the ESN live network which involves testing both the EE and MSI components of the solution

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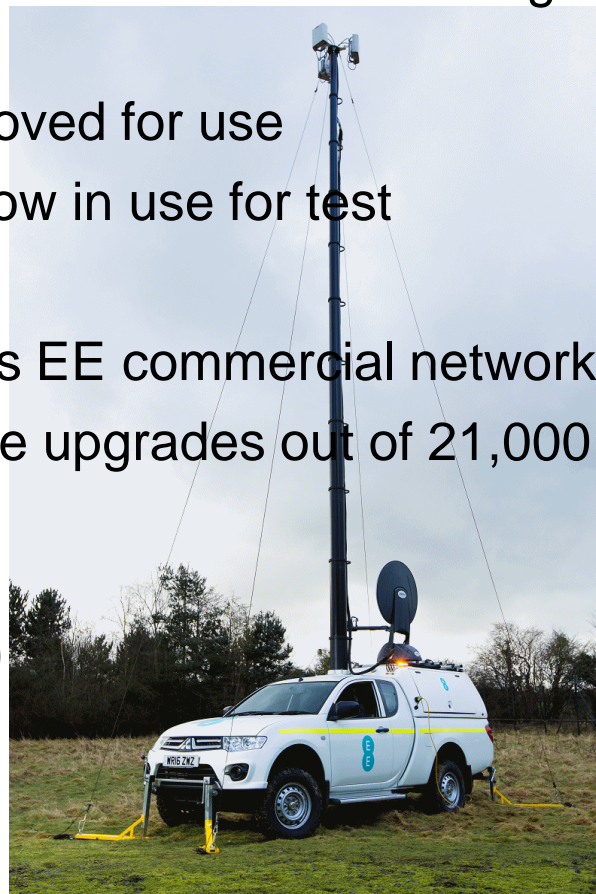# Devices and Applications Progress 2

- Demonstrated the following Public Safety Communication Services over an EE test network: -
  - PTT Group Calls
  - PTT Emergency Calls
  - Emergency Call Pre-emption characteristics
  - Device Location and Presence services
  - Ambient Listening
  - Device Notifications including loss of coverage
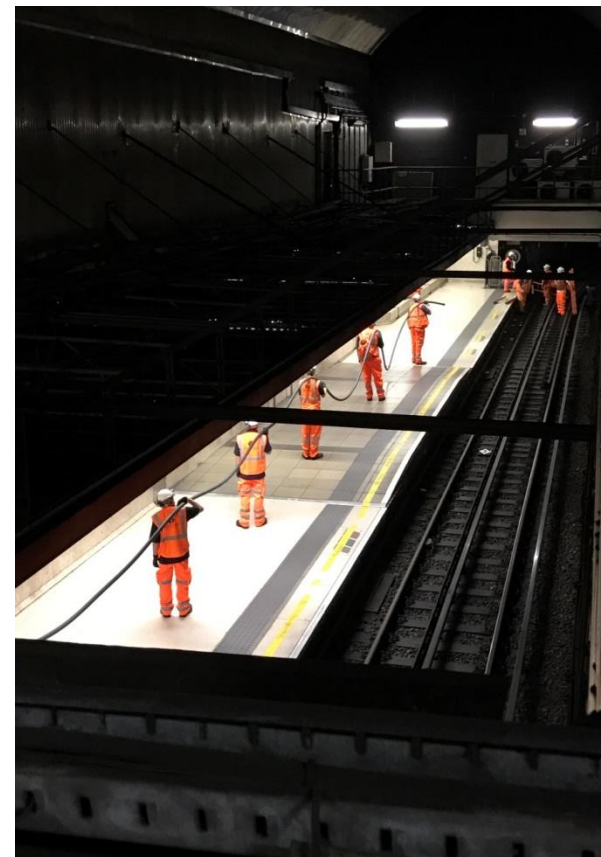 - Linked Communication Groups

Screen Shot – Group Call

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Site Progress

- EE completed the build of 245 new sites for ESN meeting their ED21milestone

- EE Rapid Response Vehicle approved for use

- Build of the reference system is now in use for test

- Go-live of the first NATS service

- Enabling of LTE at 800MHz across EE commercial network

- EE has completed over 19,000 site upgrades out of 21,000 ready for ESN

  - 16,002 sites activated on 1800

  - With 3,212 also activated on 800

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Further Progress

- Trials and Pilots Advisory Group formed and inaugural meeting held

- 81 DNSP orders placed and in delivery

- All Emergency Services enrolled

- Vehicle Device procurement started

- Over 160 Special Coverage Solution survey's completed

- EAS Progress: -

  – Over 248 Sites Nominated

  – 16 Planning Applications submitted

  – 4 Planning Applications Approved

- 15 Km of leaky feeder laid by TfL, 65 Km by the end of the year

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Questions?