

www.scotland5gcentre.org.uk

The Scotland 5G Centre

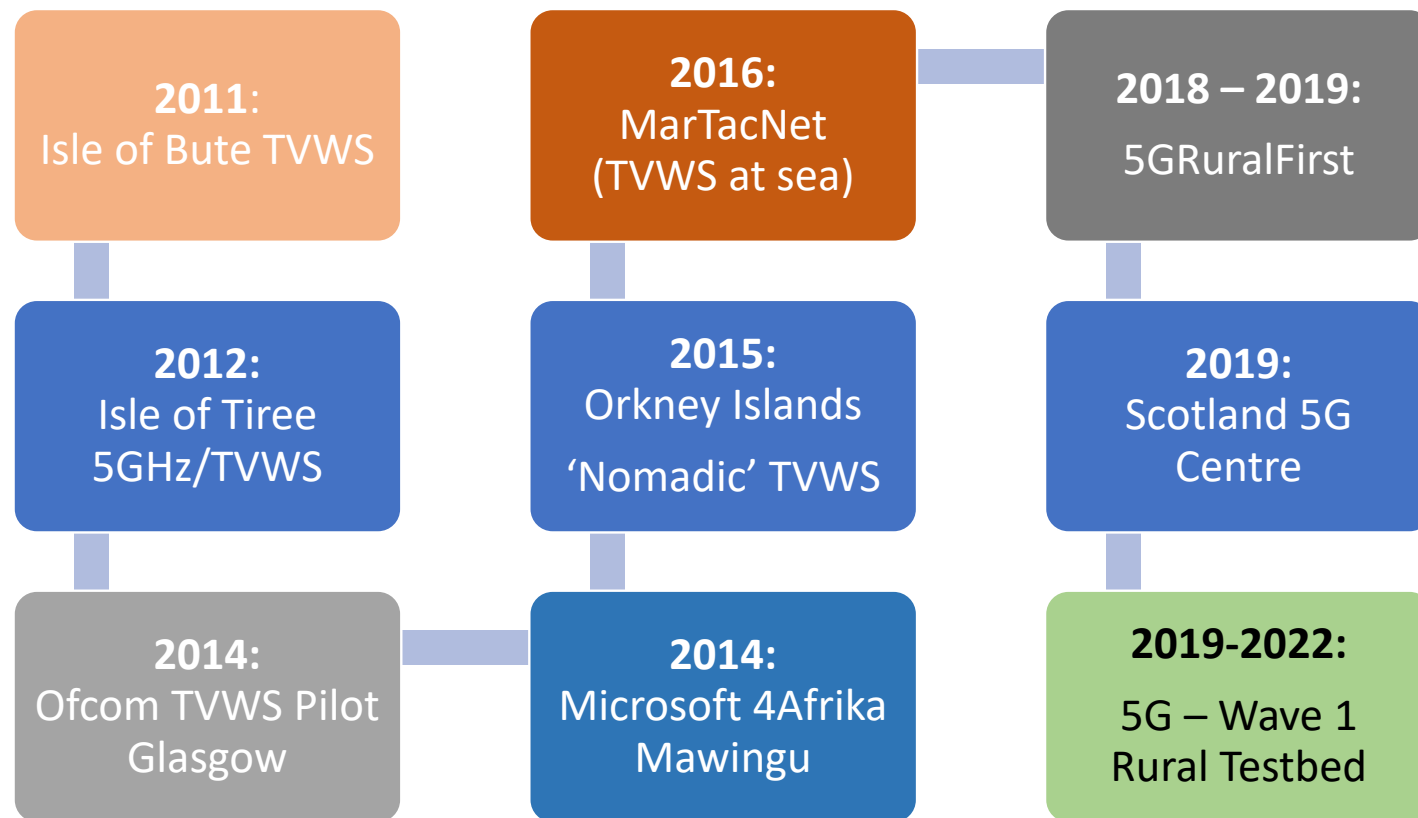
Wave 1 Project:
5G Rural Testbed



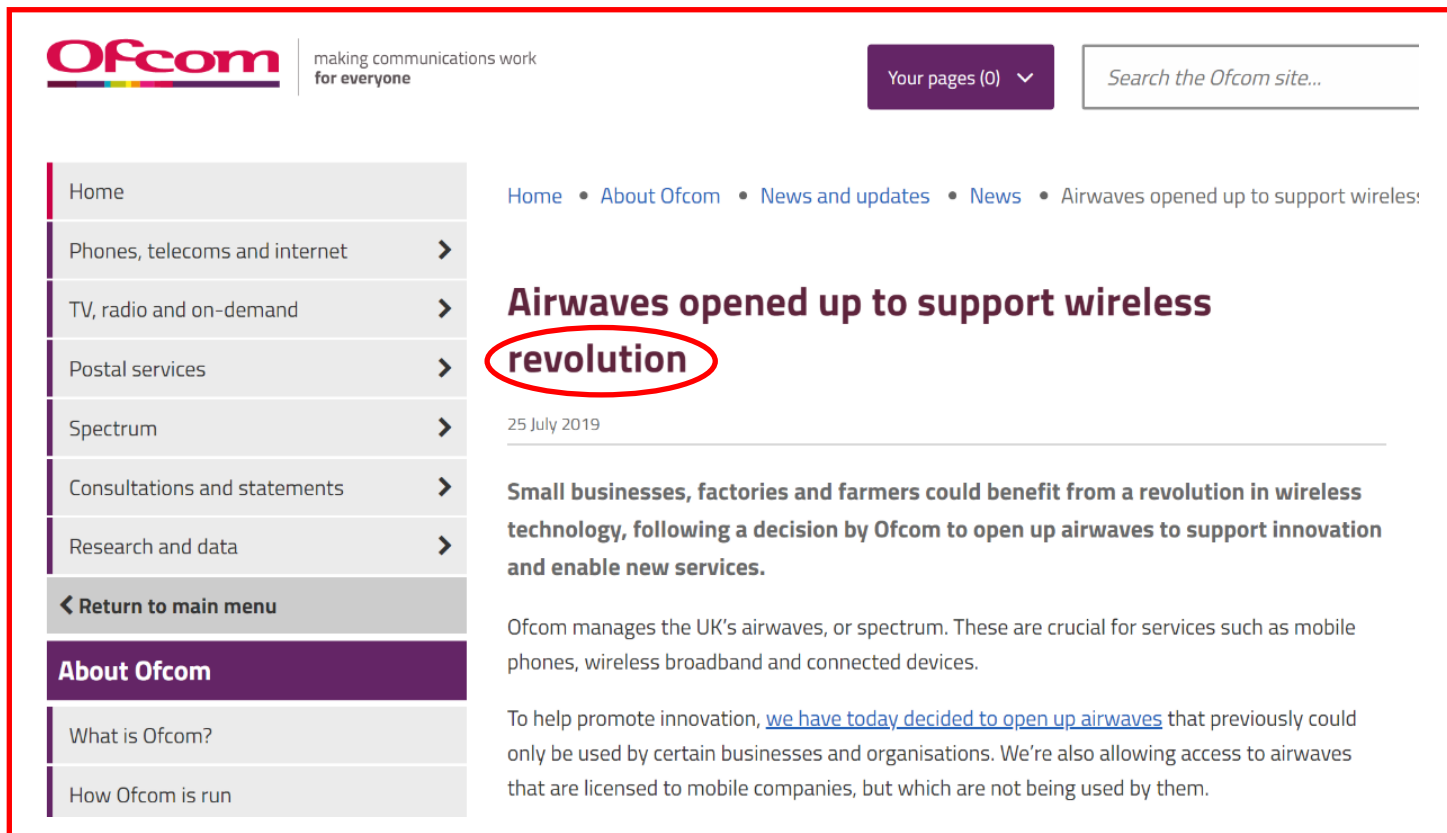
The
Scotland
5G Centre

Leading our nation's digital future

Journey to the 5G Wave 1 – Rural Testbed



Wireless Revolution Day! – 25th July 2019



The screenshot shows the Ofcom website interface. At the top left is the Ofcom logo with the tagline 'making communications work for everyone'. To the right is a search bar and a dropdown menu for 'Your pages (0)'. Below the header is a navigation menu with links: Home, Phones, telecoms and internet, TV, radio and on-demand, Postal services, Spectrum, Consultations and statements, and Research and data. A 'Return to main menu' link is also present. The main content area features the article title 'Airwaves opened up to support wireless revolution' with the word 'revolution' circled in red. Below the title is the date '25 July 2019' and a summary paragraph: 'Small businesses, factories and farmers could benefit from a revolution in wireless technology, following a decision by Ofcom to open up airwaves to support innovation and enable new services.' The article body text states: 'Ofcom manages the UK's airwaves, or spectrum. These are crucial for services such as mobile phones, wireless broadband and connected devices. To help promote innovation, [we have today decided to open up airwaves](#) that previously could only be used by certain businesses and organisations. We're also allowing access to airwaves that are licensed to mobile companies, but which are not being used by them.'

Ofcom

making communications work
for everyone

Your pages (0) ▾

Search the Ofcom site...

Home • About Ofcom • News and updates • News • Airwaves opened up to support wireless:

Home

Phones, telecoms and internet >

TV, radio and on-demand >

Postal services >

Spectrum >

Consultations and statements >

Research and data >

< Return to main menu

About Ofcom

What is Ofcom?

How Ofcom is run

Airwaves opened up to support wireless revolution

25 July 2019

Small businesses, factories and farmers could benefit from a revolution in wireless technology, following a decision by Ofcom to open up airwaves to support innovation and enable new services.

Ofcom manages the UK's airwaves, or spectrum. These are crucial for services such as mobile phones, wireless broadband and connected devices.

To help promote innovation, [we have today decided to open up airwaves](#) that previously could only be used by certain businesses and organisations. We're also allowing access to airwaves that are licensed to mobile companies, but which are not being used by them.

5G is an opportunity to do things differently!

4

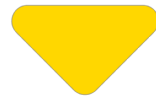
LICENSED SPECTRUM

Exclusive use
Over 40 bands globally for LTE



SHARED SPECTRUM

New shared spectrum paradigms
e.g 2.3GHz Europe (LSA),
3.5GHz USA (CBRS),
Spectrum Sharing Framework (UK)



LICENCE-EXEMPT SPECTRUM

Shared use
e.g TVWS,
2.4GHz / 5GHz / 60GHz global

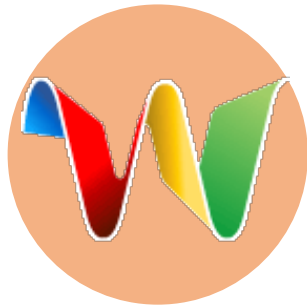


5G Rural Wave 1 – Key Ingredients!

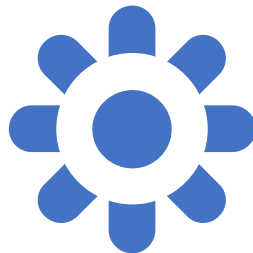
***RAN &
Backhaul***



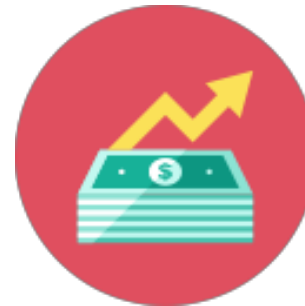
***(Shared)
Spectrum***



***Cloud &
Core***



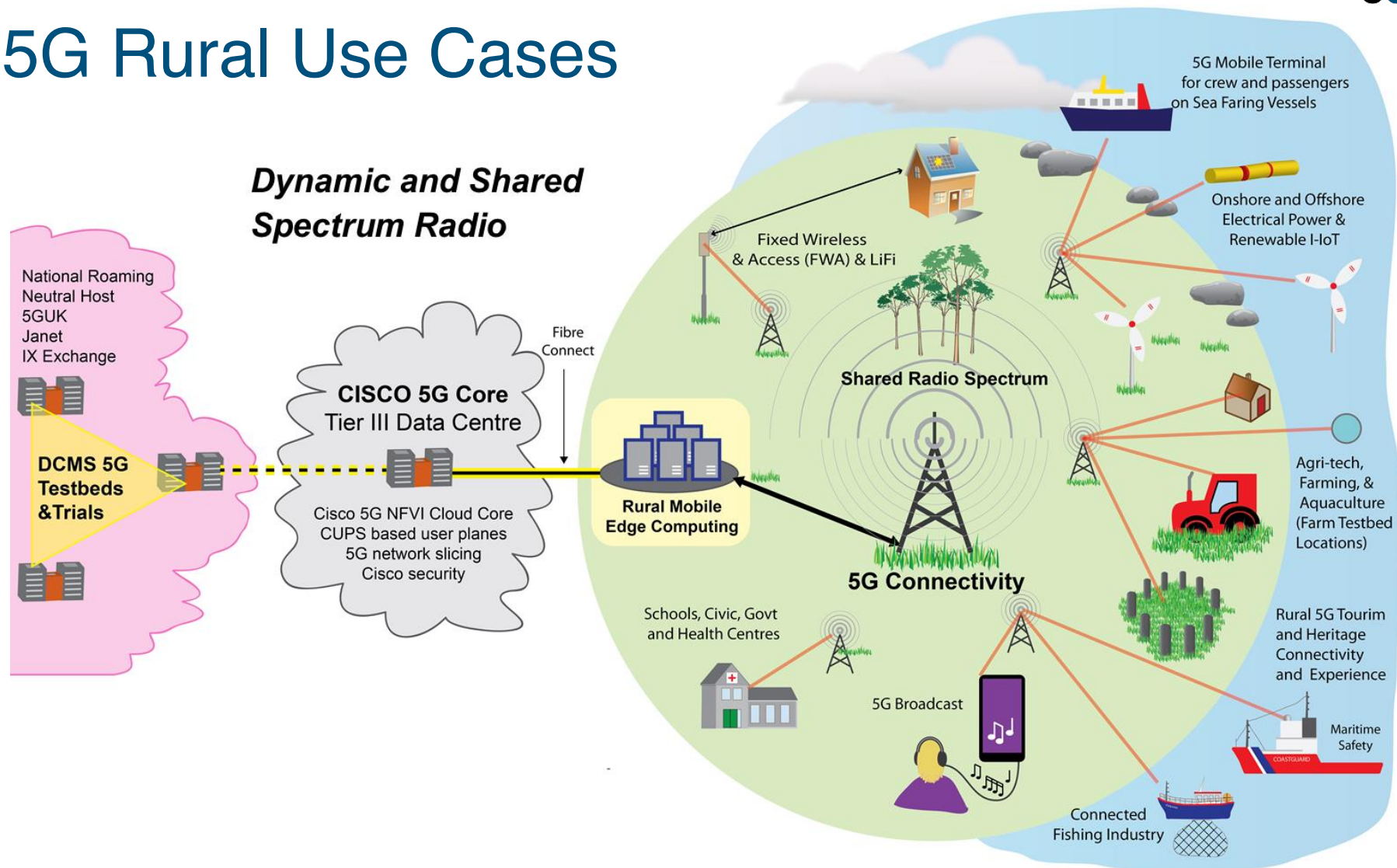
***Enterprise &
Industry***



***Community
& Civic***



5G Rural Use Cases



5G Rural Live Labs – Core Locations

- **Loch Lomond & Trossachs** - 40 minutes from Glasgow City
- **Ross Priory**: University of Strathclyde Conference Venue

7



5G Rural Live Labs – Key Locations

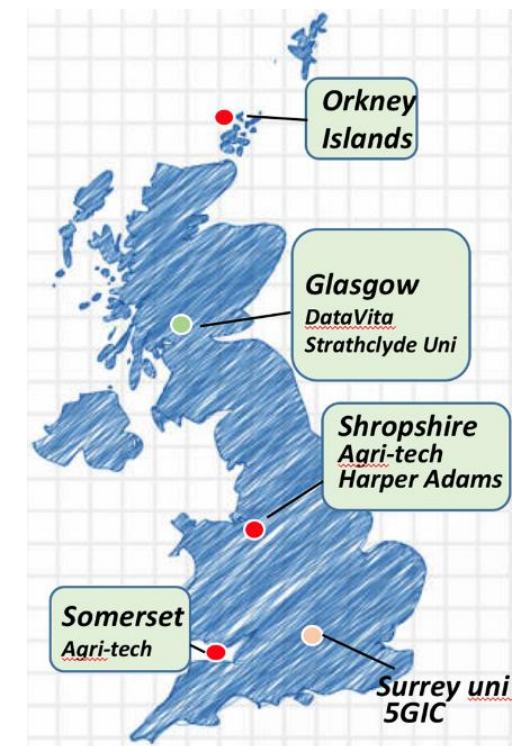
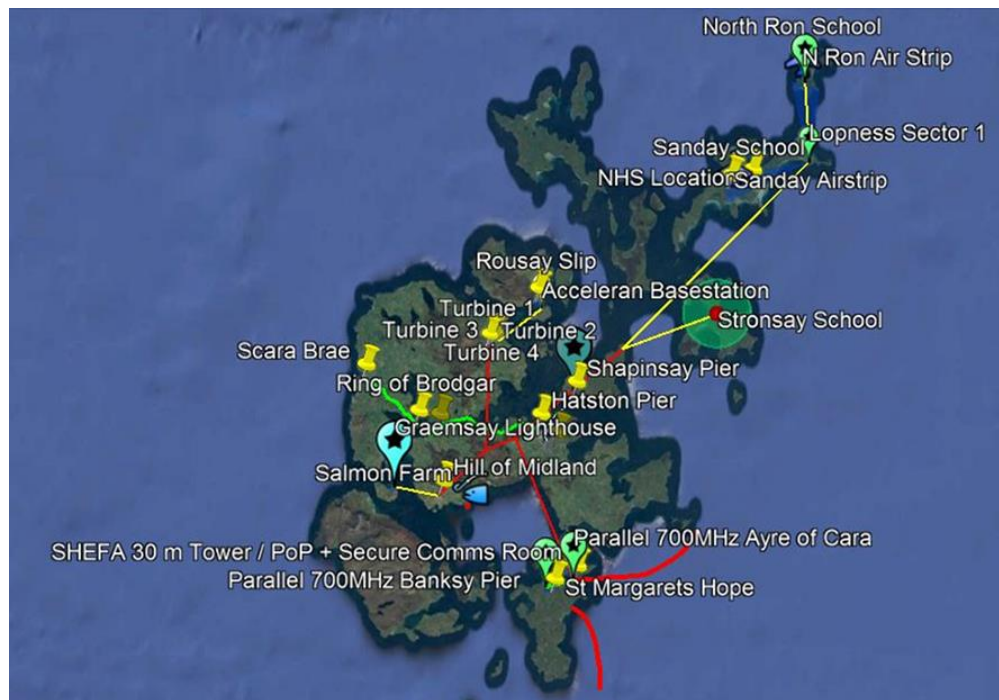
- **Loch Lomond & Trossachs** - 40 minutes from Glasgow City
- Ross Priory: University of Strathclyde Conference Venue



5G Rural Live Labs – Key Locations

- **Orkney Islands**

Remote Rural Island Network



5G Rural Live Labs – Key Locations

- **Orkney Islands**

Remote Rural Island Network

Fixed Wireless Access (Broadband)

Digital Broadcasting

Sustainable Tourism – Tour Buse Route

Virtual Tour Guide – Orkney Origins

Street WiFi – Federated – Single Sign-on

Security @ Sea CCTV

Neutral Host

IoT

*Smart Parking, Security Intruder Sensors,
Environmental monitoring, Wind-farms*



5G Rural Live Labs – Key Locations

- **Orkney Islands**

Remote Rural Island Network

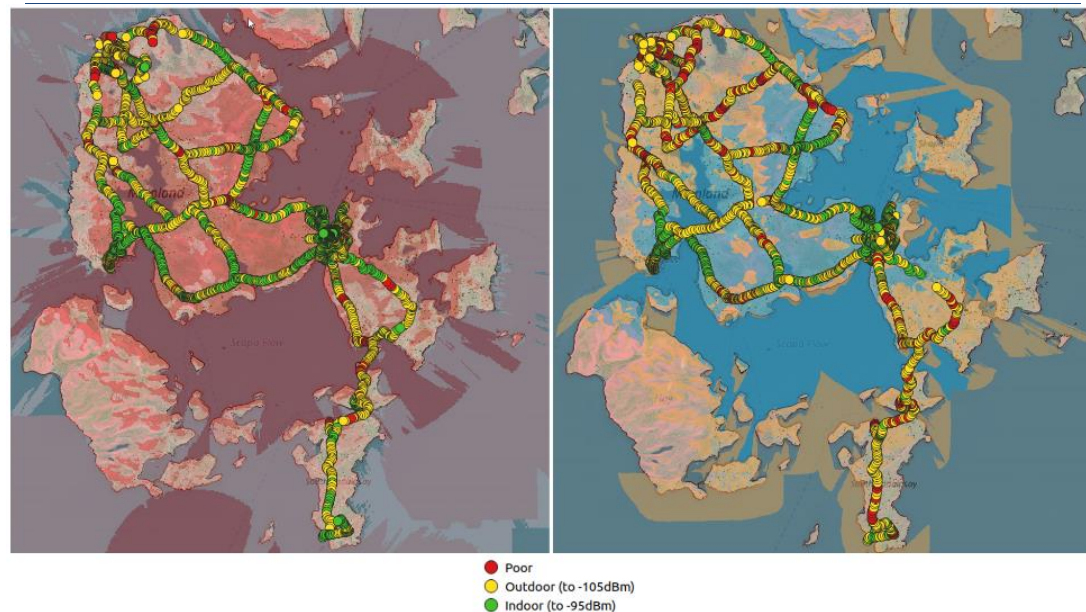


11



Project 5G Rural Wave 1 - Engineering Design

- Shared Spectrum 5G Networks
- Disaggregated (low cost) RAN
- Neutral Host
- Local Roaming
- Enhanced Mobile Broadband
- Fixed Wireless Access
- Mobile Edge Computing
- Cybersecurity by Design
- Wide Area NB-IoT
- Private 5G Networks
- WiFi6 Integration

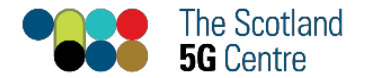


Orkney - Ring of Brodgar

Waited 4500 years for Broadband ... Arrived March 2019



Leading our nation's digital future



The Scotland
5G Centre