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# Allied Minds

## Federated Wireless positioned to begin commercialisation of shared spectrum services

Allied Minds plc (LSE: ALM), the IP commercialisation company focused on early stage technology businesses, announces that its portfolio company Federated Wireless ("Federated"), a pioneer in Citizen Band Radio Service (CBRS), will immediately initiate its services following approval by the Federal Communications Commission (FCC - the US radio, television, wire, satellite, and cable regulator) for an initial commercial deployment (ICD) of CBRS.

Federated is working to accelerate availability of high-speed, low-cost wireless access to mobile data via the CBRS market, which is in a state of rapid and dynamic growth. Federated has a customer base of more than 25 companies spanning the telecommunications, energy, hospitality, education, retail, office space, municipal and residential verticals, with a wide range of use cases ranging from network densification and mobile offload to private LTE and industrial IoT. Its partner ecosystem includes more than 40 device manufacturers and edge partners, all of which are dedicated to collaboration to advance development and proliferation of CBRS services.

On 4 September 2019, Federated secured \$51 million additional funding. Participants included new investors SBA Communications (NASDAQ: SBAC) and Pennant Investors, alongside existing investors GIC, Singapore's sovereign wealth fund, American Tower (NYSE: AMT) and Allied Minds.

**Joe Pignato and Mike Turner**, Co-CEOs of Allied Minds, said:

***"Federated is an excellent example of how our vision for IP commercialisation translates into market opportunity. We developed the original commercial premise following a US executive order enabling the shared use of CBRS spectrum. We have nurtured and supported this business from its original concept to its current position - now poised for commercialisation in the foreseeable future."***

***"FCC approval represents achievement of the last key milestone for Federated, which is addressing a very substantial market opportunity in CBRS and other spectral bands and geographies."***

**Iyad Tarazi**, President and CEO of Federated Wireless, said:

***"Customers from all areas of business across the nation will begin today to reap the benefits of the higher throughput, improved availability and low barrier to entry for high performance CBRS services made available through shared spectrum in the 3.5GHz range."***

***"We applaud the FCC for its leadership in opening this spectrum for general shared use, and its stewardship in bringing the industry and all of its various players to this critical juncture. CBRS will be a huge boon to innovation and help to accelerate new business models."***

## Background on Federated Wireless

### Validation of Allied Minds commercialisation model

Allied Minds developed the commercial premise behind Federated, working with the US Navy and a team of academics at The Hume Center for National Security, Virginia Tech, to develop the technology underlying its ESC (sensor system) and SAS (spectrum allocation system).

Allied Minds incubated the company providing seed capital and initial direction, before hiring a team of experienced, entrepreneurial telecom infrastructure executives.

Federated has led the extensive work with the FCC to develop the rules and protocols underlying CBRS spectrum sharing which allow for appropriate security standards and dynamic allocation of available spectrum in a way that maximizes efficiency benefits for consumers and their end customers.

Federated was an initial sponsor member of the CBRS Alliance, a body now with 135 members, adopters and advisors across the spectrum sharing ecosystem, which has advocated for the adoption of the model and implemented widespread shared standards.

Allied Minds has provided commercial, finance and legal support and guidance and scrutiny to Federated.

In line with Allied Minds' broader strategic objectives, it allows key strategic investors, including American Tower, to back the company with investment dollars, board representation and commercial support.

With this announcement and the latest funding round, including further new investors, the Company is poised to exploit its industry leading position as it enters commercialisation phase.

### **CBRS: The Innovation Band**

Dubbed "The Innovation Band" since its inception, CBRS is a groundbreaking wireless technology that delivers the best attributes of traditional wireless and Wi-Fi, with lower fixed cost, higher quality and greater efficiency and scale.

The 150 MHz available in the 3.5 GHz CBRS band is approximately equivalent to that owned by the largest national wireless carriers and is divided into three tiers of service dedicated to:

- Priority Access Licenses (PALs), which will be used to expand national carrier network capacity
- General Authorized Access, which is available to public venues, property managers and others who need to augment and improve their wireless communications networks and service capabilities
- Incumbents, including the US Navy, who use the spectrum for ship-to-ship and ship-to-shore communications as well as defense system management

### **Critical use cases**

Federated is working with customers and partners that represent each of the market segments poised to benefit from this massive swath of mid-band spectrum:

#### ***Mobile Network Operators (MNOs)***

CBRS allows MNOs to quickly roll out additional network capacity for new indoor and outdoor wireless services while keeping customers on their network. As an extension of their existing networks, Quality of Service remains high.

Unlike Wi-Fi bands which are getting crowded, access is dynamically managed by the SAS so interference is kept to a minimum. Unlike DAS (distributed antenna system), which can be expensive and disruptive to deploy, CBRS deployment costs are on par with Wi-Fi.

#### ***Cable Mobile Virtual Network Operators (MVNOs)***

CBRS lets MVNOs cost-effectively add LTE to their millions of installed APs, offering coverage extension and capacity augmentation. This can be translated into higher quality of service for existing customers, and new revenue opportunities through premium enterprise service offerings.

#### ***Wireless Internet Service Providers (WISPs)***

CBRS offers a new opportunity for WISPs to invest in network upgrades that can expand the availability of reliable and affordable fixed broadband service. Many WISPs hold licenses in 3650-3700 MHz today, so that adding CBRS technology to their toolkit will simply require a software upgrade to equipment that is already deployed. Because of the low-cost model, WISPs using CBRS spectrum for fixed wireless broadband access provides quick ROI and helps close the urban-rural digital divide.

#### ***Enterprise***

CBRS offers a new opportunity for enterprises to upgrade their communications networks with high-speed private LTE solutions that they can deploy themselves, with the cost and simplicity of Wi-Fi. CBRS can be used to reduce interference on the Wi-Fi network, or to run specific IoT services like cameras and door entry that require security and reliability. CBRS also enables operator-neutral networks that serve both employees and customers, whether they are guests, patients, tenants, shoppers or sports fans.

#### ***Managed Service Providers (MSPs)***

CBRS-based, high-quality, high-speed operator-neutral LTE networks let MSPs add a whole new set of service offering to their portfolios. Property managers can add indoor LTE to Wi-Fi as a selling point for attracting new tenants, while hotels and convention centers can keep their guests connected while they are anywhere on the property. CBRS can also be used to reduce interference on the Wi-Fi network, or to run specific IoT services like cameras and door entry that require security and reliability.

### **CBRS: A Bridge to 5G**

While 5G promises great things, including mobile data throughput from 1-100 Gbps, low network latency approaching 1 millisecond (ms) and efficient support for larger numbers of cellular-connected IoT endpoints than 4G LTE, analysts

estimate that the road to get there is long.

CBRS provides an immediate bridge to 5G, providing much of the high-performance, cost-reduction and service breadth it promises with support for 4G service delivery as well as critical 5G capabilities including edge computing and private networks. CBRS delivers advanced services where high data throughput and low latency is essential, including remote robotic surgery, autonomous vehicles and precision manufacturing. It also supports services in which mobility is critical, including computer vision applications, augmented and virtual reality and 4K video streaming. Extensive CBRS 5G ecosystems are being developed across network and device manufacturers, and other bands (6GHz, 3.1-3.55GHz) are available for sharing to support network and service expansion. The CBRS Alliance will deliver 5G industry standards by Q4 2019.

## Enquiries

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## About Allied Minds

Allied Minds plc is an IP commercialisation company focused on early stage company development within the technology sector. With origination relationships that span US federal laboratories, universities, and leading US corporations, Allied Minds historically created, and now operates and funds, a portfolio of companies to generate long-term value for its investors and stakeholders. Based in Boston, Allied Minds supports its businesses with capital, management, expertise and shared services. For more information, please visit [www.alliedminds.com](http://www.alliedminds.com).

## About Federated Wireless

Founded in 2012, Federated Wireless has long led the industry in development of shared spectrum CBRS capabilities, taking a lead role in the formation of the CBRS Alliance, being the first to complete a wide range of trials with its Spectrum Controller and deploying the industry's first nationwide ESC network. The company's partner ecosystem includes more than 40 device manufacturers and edge partners, all of which are dedicated to collaboration to advance development and proliferation of CBRS services. Federated Wireless' customer base includes companies spanning the telecommunications, energy, hospitality, education, retail, office space, municipal and residential verticals, with use cases ranging from network densification and mobile offload to Private LTE and Industrial IoT. For more information, visit: [www.federatedwireless.com](http://www.federatedwireless.com).

## Allied Minds Forward-Looking Statement

This press release contains statements that are or may be forward-looking statements, including statements that relate to Allied Minds' future prospects, developments and strategies. The forward-looking statements are based on current expectations and are subject to known and unknown risks and uncertainties that could cause actual results, performance and achievements to differ materially from current expectations, including, but not limited to, those risks and uncertainties described in the risk factors included in Allied Minds' regulatory filings. These forward-looking statements are based on assumptions regarding the present and future business strategies of Allied Minds and the environment in which it will operate in the future. Each forward-looking statement speaks only as at the date of this press release. Except as required by law, regulatory requirement, the Listing Rules and the Disclosure Guidance and Transparency Rules, neither Allied Minds nor any other party intends to update or revise these forward-looking statements, whether as a result of new information, future events or otherwise.

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