



PROVEN  
END-TO-END  
CBRS SOLUTIONS



# BEST-IN-CLASS PERFORMANCE & RELIABILITY

---

Airspan (NYSE American: MIMO) is a multi-award-winning 4G and 5G RAN vendor that supports cloud-native open architectures, and boasts over one million cells deployed in the most cutting-edge tier one networks and vertical applications in over 100 countries.



## **A U.S. BASED COMPANY**

850+ Employees in  
15 Locations



## **END-TO-END SOLUTIONS**

Multiple Generations of  
Award-Winning Products



## **FULL PORTFOLIO OF PRODUCTS**

Disruptive Technologies  
Backed by Patents



## **20+ YEARS OF EXPERIENCE**

Developing RAN  
Hardware and Software

# AWARDS AND RECOGNITIONS

---



EXCELLENCE IN  
COMMERCIAL  
DEPLOYMENT BY A  
PRIVATE NETWORK  
Small Cell Awards  
2022



EXCELLENCE IN  
COMMERCIAL  
DEPLOYMENT BY A MOBILE  
NETWORK OPERATOR  
Small Cell Awards  
2022



OUTSTANDING  
CONTRIBUTION TO  
NEW SMALL CELL  
BUSINESS CASES  
Small Cell Awards  
2022



INNOVATION AWARD:  
PRIVATE NETWORKS  
Fierce Telecom  
2021



INNOVATION AWARD:  
DIGITAL DIVIDE (FWA)  
Fierce Telecom  
2021



BEST MOBILE  
TECHNOLOGY  
BREAKTHROUGH  
GLOMO Awards  
2018



EXCELLENCE IN  
COMMERCIAL  
DEPLOYMENT  
Small Cell Awards  
2019/2020/2021



EXCELLENCE IN  
RESIDENTIAL  
DEPLOYMENT  
Small Cell Awards  
2018



USE CASE  
INNOVATION  
5G Realised  
2019/2020



INNOVATION  
ACHIEVEMENT  
CANTO  
2018



FIXED WIRELESS  
BROADBAND  
SOLUTION OF THE  
YEAR  
Mobile Breakthrough  
2018



WIRELESS NETWORK  
INNOVATION PRODUCT  
OF THE YEAR  
Compass Intelligence  
2018

# WHAT IS CBRS?

---



CBRS is short for Citizens Broadband Radio Service. In the United States, it defines the usage rules for using the 3.55–3.70 GHz band.



The CBRS band does not require spectrum licenses and reduces the cost of data transmissions.



FCC Rules Part 96 defines commercial use of the CBRS band.



Utilizing shared spectrum, it expands coverage both in-building and outdoors, and increases overall capacity.

# WHY CBRS?

---

1

CBRS significantly lowers the barrier to entry for non-traditional wireless carriers.

2

CBRS provides an opportunity for operators to expand access to spectrum for enhanced Mobile Broadband Services (eMBB).

3

CBRS provides an opportunity for operators to set up private networks that are separated from licensed and expensive spectrum, with performance significantly better than WiFi.

4

With the option to use either Priority Access License (PAL) or General Authorized Access (GAA) spectrum, or both, network operators can have access to up to 150 MHz of spectrum.

# THREE-TIER SPECTRUM SHARING

---

## Tier 1: Incumbent Access

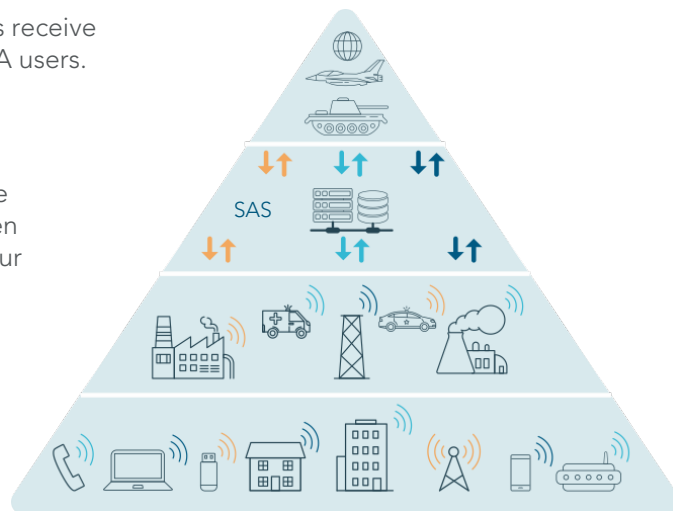
Includes authorized federal users. Incumbent Access users receive protection against harmful interference from PAL and GAA users.

## Tier 2: PAL (Priority Access Licenses)

Licensed on a county-by-county basis through competitive bidding. PAL's are 10 year, renewable licenses. Up to seven PAL's may be licensed in any given county, subject to a four PAL channel aggregation cap for any licensee. Receives protection from GAA users.

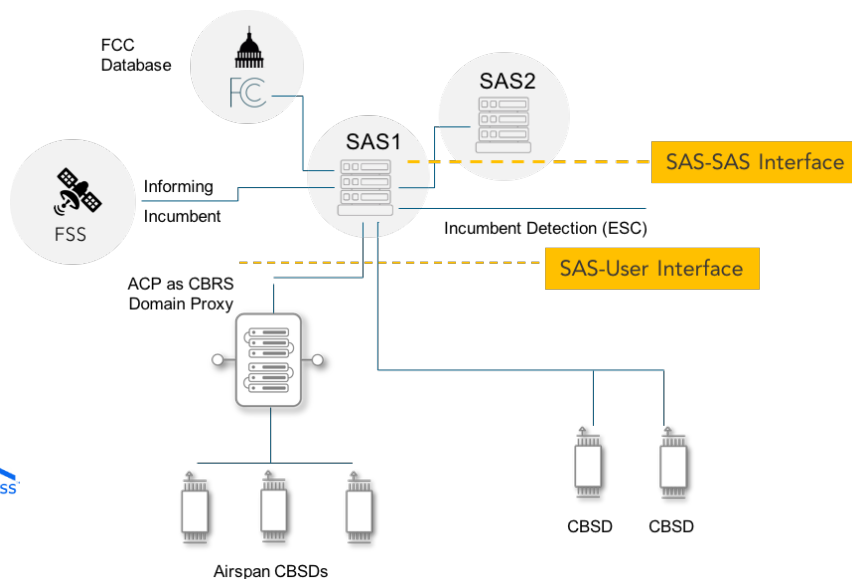
## Tier 3: GAA (General Authorized Access)

Open, flexible access. Must not cause harmful interference to Incumbent Access or PAL users.



# ARCHITECTURE – SAS, DOMAIN PROXY, CBSD

The SAS (spectrum access system) is an external, cloud-based system that manages wireless communications. It enables authorization of CBRS devices, and management use of the spectrum, in accordance with FCC guidelines. Domain Proxy performs a set of procedures to authorize a CBSD with the SAS.



COMMScope®

federated wireless

SONY



# THE AIRSPAN ADVANTAGE

---



**PRACTICALLY ZERO TIME TO MARKET** to get up and running. Offers private, high-capacity, and secure networks for multiple segments.



**SUPERIOR PERFORMANCE & LATENCY** with a complete, end-to-end CBRS solution portfolio for fixed and mobile operators. Increase capacity and coverage today.

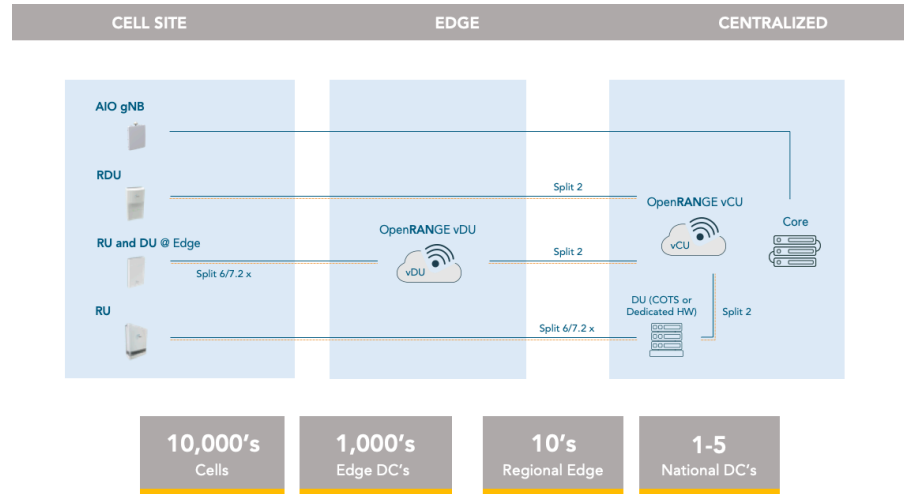


**U.S.-BASED & WELL ESTABLISHED** as members of CBRS Alliance and CBRS Winnforum, with partnerships with all leading SAS vendors (Federated Wireless, Google, Sony, Commscope), and certifications from OnGo.



# SPLIT ARCHITECTURE OPTIONS

- Split architecture options, such as 2, 6, 7.2, or all-in-one gNB enable multi-vendor operation to future-proof TCO
- Based on open interfaces such as O-RAN, Small Cell Forum (nFAPI), and 3GPP F1
- Breaks the chains of traditional supply chains, revolutionizing the way networks are built today



# CBSD PORTFOLIO (LTE)

---

Up to 300 Mbps



## AirSpeed 1030

- Outdoor Pico Cell
- 52 dBm EIRP
- CAT-B
- 40 MHz Max Channel BW
- Integrated or External Antenna
- 2 x 2T2R



## AirSpeed 1000

- Outdoor Pico Cell
- 48 dBm EIRP
- CAT-B
- 40 MHz Max Channel BW
- External Antenna
- 2 x 2T2R



## AirStrand 1310

- Outdoor Small Cell
- Strand Mount
- 48 dBm EIRP
- CAT-B
- 40 MHz Max Channel BW
- Omni or SBA Antenna
- DOCSIS Backhaul
- 2 x 2T2R

# CBSD PORTFOLIO (LTE)

---

Up to 300 Mbps



## AirVelocity 1500

- Indoor Small Cell
- 35 dBm EIRP
- CAT-A
- 40 MHz Max Channel BW
- Integrated Antenna
- 2 x 2T2R



## AirSpot 5410

- Outdoor CPE
- 44 dBm EIRP
- CAT-B
- CAT12
- Integrated 18 dBi Antenna
- 2T4R



## AirSpot 1421

- Indoor CPE
- 41 dBm EIRP
- CAT-B
- CAT12
- Integrated Antenna
- 2T4R
- 4 x CA

# CBSD PORTFOLIO (5G-NR)

---

Up to 5 Gbps



## AirSpeed

- Outdoor
- AIO gNodeB or Open RAN
- Sub-6 GHz
- Single or Dual Sector
- Supports CBRS



## AirStrand

- Outdoor
- AIO gNodeB or Open RAN
- Strand Mount
- DOCSIS Backhaul
- Dual Sector
- Supports CBRS



## AirStar

- Indoor
- AIO gNodeB or Open RAN
- Sub-6 GHz
- Dual Sector
- Supports CBRS



## AirVelocity

- Indoor RU
- 39 dBm EIRP
- CAT-A
- 100 MHz Max Channel BW
- 4T4R



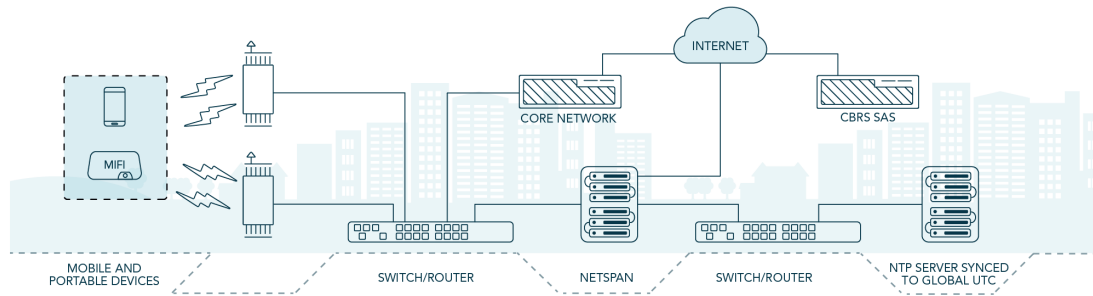
## AirSpot 5G

- Outdoor CPE
- 23 dBm Tx Power
- CAT-B
- Integrated 7 dBi Antenna

# ACP/NETSPAN – EMS

---

Built for managing CBSD's, ACP/Netspan is a field-proven EMS (element management system) with a seamless interface that allows complete visibility via a single server. It provides alarms, event history, configuration, map views, statistics, inventory management, and much more. ACP/Netspan controls all interaction with the SAS, including maintaining grants and handling heartbeats. Airspan's Domain Proxy communicates with the SAS on behalf of all our CBSD's, considerably reducing OpEx.



# EMS FEATURES

---



## **FAULT MANAGEMENT**

Set alarms and event logging



## **CONFIGURATION MANAGEMENT**

Provisioning options and inventory management



## **PERFORMANCE MANAGEMENT**

Data and performance statistics and analysis



## **SECURITY MANAGEMENT**

Access control and policies from different levels



## **AVAILABILITY**

Virtualization and architecture



## **SCALABILITY**

Virtual machine and multiple server deployments



## **USABILITY**

Web client-based, search capability, useful tools, profiles



## **OSS INTEGRATION**

XML/SOAP-based interface, KPI's, event and activity logs

# SOLUTIONS FOR BAND 41 (2.496–2.690 GHz)

---

This multi-purpose band is used in education, distant learning, telemedicine, tribal networks, rural coverage, and many more essential applications. Upcoming FCC auctions in the U.S., should likely open up more availability in this band. Airspan's band 41 solutions are ideal for WISP's, MSO's, and larger carriers.



## 4G

### AirHarmony

Outdoor, long-range, mini-macro  
(dual sector and dual carrier)



### AirSpeed

Outdoor pico cell  
(dual sector with integrated  
smartbeam antennas)



### AirStrand

Outdoor, strand-mount pico cell  
(dual sector with DOCSIS backhaul  
and power)



### AirVelocity

Indoor small cell (wireline backhaul)

## 5G

Based on Open RAN architecture, Airspan's end-to-end 5G outdoor and indoor portfolio include the radio unit (RU), as well as the software running on the central and distributed unit (CU/DU) which follow the latest standard releases from 3GPP and O-RAN Alliance.





# CUSTOMER CASE STUDY

---

With long distances between sites and extremely harsh environments, network communication between multiple locations had to be solved. Airspan stepped in with their CBRS solutions to provide secure, reliable, rugged, high-speed broadband for data and voice, as well as real-time access to video surveillance and critical data. Airspan's deployment proved to be successful, efficient, and reliable for this major multinational energy corporation.





## CUSTOMER CASE STUDY

---

Traditionally, WiFi has been the transport of choice for all wireless communication in healthcare. With heavy reliance on handheld devices recently, there has been a decline in adoption, as WiFi fails to perform well. We have seen smart devices traded out for walkie talkies and pagers just to get as close as possible to 100% message delivery. The better and more reliable solution is CBRS. In partnership with a well-known broadband systems integrator, Airspan delivered a secure end-to-end, carrier class, low latency, voice-first wireless network designed to increase staff efficiency and real-time response to critical patient care at multiple facilities.



# CUSTOMER CASE STUDY

---

In the U.S., only 56% of households have access to broadband internet. With the onset of the COVID-19 pandemic, student connectivity at home became essential to education. Multiple public school districts in Texas and Florida deployed solutions that use CBRS, and CBRS spectrum for FWA (Fixed Wireless Access), enabling their students to stay connected and continue learning. Airspan's small cells and CPE's were key in rapidly and effectively addressing this critical need.



# CUSTOMER CASE STUDY

---

Current inflight connectivity solutions have high installation and service costs, and even higher latency. They simply do not deliver the performance required to satisfy current demands. While satellite systems are the only method to provide connectivity for long, overwater routes, they are inherently limited in capacity over dense terminal areas. The Air5G air-to-ground (A2G) solution leverages a high-performance, 5G standalone system using state-of-the-art, vRAN base station technology and massive MIMO antenna arrays. Utilizing advanced beamforming and tracking techniques, the system is capable of communicating to an aircraft traveling in excess of 1200 km/h, at a maximum range of 300 km at enhanced mobile broadband speeds. The system is built on the same technology as the Air5G OpenRANGE product line, which is based on 3GPP, O-RAN standards. Gogo completed a seven-tower 5G testbed as part of the deployment of its nationwide 5G air-to-ground (A2G) network at the end of 2021. It is set to go live in 2022.



# CBRS CAN HELP

---

CBRS is the efficient and innovative way to use dynamic spectrum in all vertical markets. Small, medium, and large businesses require secure networks for growing data demands resulting from modernization, automation, and remote devices. Banks, educational institutions, convention centers, healthcare facilities, retailers, and others can own a secure, high-capacity, private LTE network with significantly low TCO.

- ⊗ Utilities
- ⊗ Industrial
- ⊗ Smart Cities
- ⊗ Smart Homes
- ⊗ Governments
- ⊗ Airports
- ⊗ Ports
- ⊗ Education
- ⊗ Healthcare
- ⊗ Retail

For more information about our any of products or solutions, please visit [airspan.com](https://airspan.com) or contact [sales@airspan.com](mailto:sales@airspan.com) to get in touch with a representative from one of our offices.





A Member of

