

AirSynergy 2000

Outdoor LTE-Advanced Pico Base Station
with Integrated Wireless Backhaul



Multi-Function, Compact and Versatile

Redefining the economics of LTE-Advanced HetNet Deployment



AirSynergy

The world's most
compact and versatile
4G LTE Pico Base Station



Addressing unprecedented mobile data traffic growth



Mobile Carriers are currently experiencing an unprecedented growth in mobile data traffic, which today's 3G and 4G LTE networks are struggling to satisfy.

As part of a heterogeneous network, Pico Base Stations are located closer to the end user, providing much higher aggregate data rates.

The issue with most Pico Base Stations is the difficulty in connecting them with the rest of the network. AirSynergy solves this problem by combining a 4G Pico Base Station with an integrated, high capacity, self-connecting wireless backhaul.

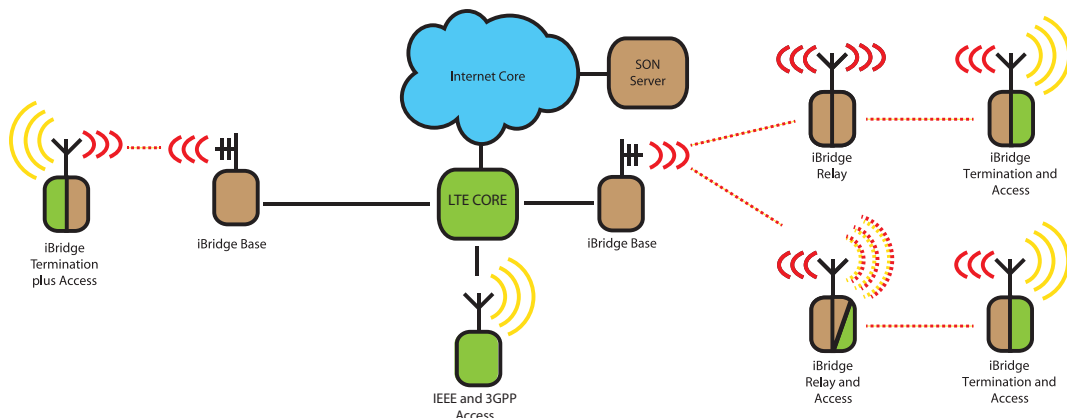
AirSynergy is Airspan's groundbreaking Pico base station using Software Defined Radio (SDR) technology, providing both data access and wireless backhaul from the same unit. AirSynergy is an all-in-one compact Pico Base Station which supports a wide range of radio interfaces including 4G LTE and WiMAX technologies.

The integration of backhaul and access technologies is an industry first, and redefines the way in which networks can be constructed.

This technique enables AirSynergy to be deployed on street furniture (e.g. lamp posts), with connections automatically established through neighboring nodes to establish a backhaul connection with the network.

A key feature of the AirSynergy technology is the ability to self-configure, self-connect, self-heal and self-optimize when deployed as a network of elements. At the same time AirSynergy provides guaranteed levels of service with Quality of Service (QoS) characteristics in line with the requirements of the access interface

Network Architecture Diagram



RELEASE 10 LTE-ADVANCED

AirSynergy 2000 provides the outdoor Pico layer of a Heterogeneous LTE-Advanced network deployment (HetNet). Advanced Release 10 feature sets include support for SON and eCIC which enables N=1 frequency re-use with the Umbrella Macro cell. The cooperative QoS over the Backhaul interface ensures the Quality of Experience (QoE) from the Pico eNodeB matches the experience from the Macro cell.

THE POWER OF HETNETS

As operators struggle to cope with growing customer demand for higher throughput, they are discovering that layering small base stations into a macro cell coverage area, enables a significant increase in network capacity by filling in coverage gaps and addressing actual traffic distribution where demand is highest. AirSynergy 2000 is ideal for these networks, delivering high data rates where needed most, whether at the macro cell edge or closer to the user base, maximizing coverage and customer satisfaction.

BROADBAND ACCESS

AirSynergy 2000 supports either 3GPP LTE or IEEE Broadband access technologies in combination with Airspan's intelligent IEEE wireless backhaul technology, known as iBridge. AirSynergy supports both IEEE 802.11 and IEEE 802.16 radio interfaces and provides both local and wide-area broadband services. Airspan's 3GPP LTE implementation is compliant with the 3GPP standards

and has interoperable S1 and X2 interfaces and supports commercial GCF tested UE devices, including SmartPhones, Dongles and Tablet computers.

AirSynergy uses a unique combination of Software Defined Radio (SDR) and System-on-a-Chip (SoC) technologies to enable it to support a range of air interfaces simultaneously.

INTEGRATED WIRELESS BACKHAUL

AirSynergy 2000 uniquely provides an integrated wireless backhaul solution using Airspan's iBridge IEEE P802.16r technology. iBridge is a self-configuring, self-connecting point-to-multipoint backhaul solution, which automatically extends the reach of the network from existing Points of Interconnect (POI). iBridge supports multi-hop relay connections, providing backhaul for either LTE or IEEE access interfaces.

SUSTAINABLE DEPLOYMENT

AirSynergy 2000 Pico Cells can be installed on existing street poles (lamp posts or utility poles) which are either OPEX free, or have nominal on-going expenses, thus avoiding the recurring costs associated with a traditional Macro site acquisition. AirSynergy also requires a fraction of the power of a Macro base station, further reducing the OPEX, and allowing renewable energy sources, such as solar panels, to be used.

ALL-IN-ONE SOLUTION

AirSynergy consists of a single self-contained unit, removing the need for an equipment rack or any indoor equipment. Units are powered from a compact power supply unit based on AC or -48V DC power sources



PLUG AND PLAY

AirSynergy 2000 supports automated configuration from the management system, simplifying the installation of each base station. Airspan's unique self-aligning Antenna technology cuts installation time. This automation, coupled with the self-connecting iBridge backhaul results in a true plug and play solution, allowing Pico cells to be rapidly deployed.

REDUCED CAPEX / OPEX

AirSynergy 2000 is a compact all-outdoor 3GPP LTE Pico Base Station, which can be installed without conventional indoor infrastructure and associated power and air-conditioning systems. The integration of wireless backhaul reduces the equipment installed per site, as separate backhaul infrastructure is not required. This in turn reduces spares holding and inventories. The iBridge backhaul supports self healing, allowing the network to automatically recover in the event of failure. This increases overall service availability and customer satisfaction.

FLEXIBLE ARCHITECTURE

The iBridge network can support different topologies as new elements are added to the network, enabling a highly flexible and versatile deployment. Each AirSynergy 2000 node can adopt an access and backhaul functionality, automatically changing backhaul role from termination to relay to ensure a dynamic self-adapting architecture.

Through the use of Airspan's real-time iBridge SON Server, iBridge supports self-continuous optimization of backhaul links, ensuring interference between iBridge nodes is minimized and delivering end-to-end QoS across the network with minimal spectrum consumption.

RADIO PLANNING with SON

AirSynergy is designed to integrate with standardized LTE Access SON solutions. AirSynergy SON is layered and consists of both Integrated eNodeB SON technology, based on Qualcomm's UltraSON™ and a standardized SON interface (which support TR. 69) for network based SON. When deployed using iBridge backhaul AirSynergy also integrates Backhaul SON into the LTE SON Framework. This allows a network to be optimized for both LTE access and Backhaul simultaneously without the need for extensive, formal planning.

The products self-configure, self-connect, and self-optimize. In addition, unlike conventional mobile network planning and design, expansion of the coverage area can be optimized and adapted depending on the local need.



3GPP LTE-Advanced ACCESS SPECIFICATIONS

RADIO INTERFACE

| | |
|------------------------------|---|
| Version: | Release 8,9 and 10 Feature Sets |
| Operational Frequency Bands: | Band 7 and 41 (2.6 GHz) Band 12, 13, 14 and 17 (700 MHz) Band 20 (800 MHz) Band 40 (2.3-2.4 GHz) Band 42 and 43 (3.4-3.8 GHz) Band 3 (1.7-1.8 GHz) Band 44 (700 MHz) Band 4 (1.7-2.1 GHz*) Band 25 (1.9 GHz*) Band 5 (850 MHz*) Band 1 (1.9-2.1 GHz*) |
| Duplex: | FDD & TDD |
| Max Channel BW: | 20 MHz |
| Max Transmit Power: | +30 dBm per Tx |
| MCS Support: | Up to 64-QAM |
| Synchronization: | GNSS(GPS) & IEEE1588 PTPv2 |

KEY FEATURES

Advanced Antenna Techniques

- 2 x 2 MIMO: SM and TxD
- SU-MIMO
- MU-MIMO

System Features

- Inter-RAT Mobility
- RAN Sharing
- Automatic Neighbor Relation (ANR)
- eICIC, ABS and CRE
- Embedded SON

IEEE iBridge BACKHAUL SPECIFICATIONS

iBridge RADIO INTERFACE

| | |
|------------------------------|--|
| Operational Frequency Bands: | Various (between 400 MHz and 6 GHz) |
| Duplex: | TDD |
| Interface: | Layer 2 Ethernet or internal |
| MIMO Streams: | IEEE 802.16 (2 x 2), 802.11 (3 x 3 or 4 x 4) |
| MIMO Modes: | Downlink and Uplink, Spatial Multiplexing & STC |
| IEEE Standard: | 802.11 and/or 802.16 (both in Augmentation mode) |
| Max Channel BW: | 10, 20, 40 and 80 MHz (160 MHz*) |
| Max Output Power: | Up to +30dBm per Tx |
| MCS Support: | Up to 256-QAM rate 5/6 |

*In Roadmap

IEEE Broadband Wireless ACCESS SPECIFICATIONS

WIDE-AREA RADIO INTERFACE: 802.16d and 802.16e

| | |
|------------------------------|-------------------------|
| Operational Frequency Bands: | 700 MHz to 6.4 GHz |
| Duplex: | TDD |
| MIMO: | 2 x 2 with Matrix A & B |
| Max Channel BW: | 10 MHz |
| Max Transmit Power: | +30dBm per Tx |
| MCS Support: | Up to 64-QAM rate 5/6 |

LOCAL-AREA RADIO INTERFACE: 802.11n and 802.11ac

| | |
|------------------------------|------------------------|
| Operational Frequency Bands: | 2.4 GHz and 5 GHz |
| Duplex: | TDD |
| MIMO: | 3 x 3 or 4 x 4 |
| Max Channel BW: | 20, 40, 80 and 160 MHz |
| Max Transmit Power: | +24dBm per Tx |
| MCS Support: | Up to 256-QAM rate 5/6 |

KEY FEATURES

IEEE 802.16

Adaptive MIMO, Band AMC
N=1 Frequency Reuse (FFR)
Seamless Handover
AES Encryption
EAP-TTLS & EAP-TLS Authentication
IP-CS and ETH-CS with Standalone Mode
Profile C interoperability with ASNGW

IEEE 802.11

Mutli-stream MIMO
Dual Band Operation
Multiple SSID / BSSID
Hotspot 2.0 (IEEE 802.11u)
Virtual "LTE UE" mode
ANDSF with LTE SmartPhones

PHYSICAL SPECIFICATIONS

| | |
|------------------------------|---|
| eNode/BS Configurations: | Single, Dual and Triple RF Node Options 3GPP plus IEEE 802.11 and IEEE 802.16 |
| Antenna Configurations: | X-Polar Omni X-Polar Smart Switching Directional X-Polar Sectored Quad X-Polar Sectored |
| Site Configurations: | Omni Access (with or without iBridge Backhaul) Multi-sector (with or without iBridge Backhaul) Single-sector (with or without iBridge Backhaul) iBridge Relay (with or without Access) iBridge Base |
| *Dimensions: | 530 x 134 x 85 mm / 20.8 x 5.2 x 3.3 in. |
| *Weight: | 5.5 kg / 12 lb |
| *Power Consumption: | <60 Watts |
| Operating Temperature Range: | -40°C to +50°C / -40°F to +122°F |
| IP Rating: | IP66 or IP67 (Optional) |

*Single RF Node, >1 GHz

For more information about Airspan, its products and solutions, please visit our web site:

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Airspan has sales offices in the following countries

- Finland
- Poland
- Russia
- United Kingdom
- United States
- Australia
- India
- Indonesia
- Japan
- Philippines
- Sri Lanka
- UAE
- South Africa

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AirSynergy 2000 rev. I

About Airspan

With over 1000 customers in over 100 countries and as a top vendor for carrier-class 3GPP and IEEE broadband wireless solutions, Airspan is recognized as a leader and pioneer in 3GPP and IEEE broadband wireless technologies.

Providing an expansive product portfolio, Airspan offers customers the widest selection of 4G LTE products in the industry with an unsurpassed level of technology to benefit their business case. Airspan has solutions spanning the 700 MHz to 6.4 GHz frequency bands.

Contact Airspan today!

