Airports of the 21st century are bustling centers of communication. Leisure travelers use their cell phones and other devices to keep in touch with family, coordinate travel plans, and provide entertainment. Additionally, those traveling for business must stay connected to remain productive. Security personnel rely on radio communications and CCTV to keep travelers safe.

Seamless communication for business and leisure travelers is not a luxury, it is an expectation.

The challenges to providing this level of communication in an airport are numerous:

- Green building materials construction practices
- Multiple terminals cover a large area
- All operators and all bands
- Coverage for data and entertainment
- Private communications networks
- Public Safety Communications
Green Construction Practices

Steel and aluminum are common building materials that can cause reflections of RF signals and create a multi-path effect and increase interference that results in areas with no coverage. Additionally, local ordinances and consumer preferences are driving the use of new “green” building materials that compound the problem due to the metalized surfaces employed in these green construction materials. This limits the effective range of the communications system. Many airports are constructed with high, arching ceilings that can impact signal propagation and limit potential antenna locations.

Multiple Terminals Cover a Large Area

Today’s airports are constructed to move thousands of passengers and their luggage efficiently through the building each day. Relieving congestion in one particular area often results in the construction of multiple terminals, not to mention cargo specific terminals and underground tunnel networks. Designing and implementing one DAS system that provides coverage in all terminals can be a challenge.

Airport communication networks have additional complications that need to be taken into consideration. The communication system must not interfere with the FAA communications, including, the ILS (Instrument Landing System) and the ground communication system.

All operators and all bands

In addition to a transportation hub airports have become shopping destinations for travelers looking to purchase a local souvenir, duty free alcoholic beverages or designer label gifts. The airport communication system needs to be designed to meet the needs of the traveler as well as the shopper and store operator. The system must be designed with Ethernet, Wi-Fi, CCTV and public safety communications as integral parts of the overall solution.

Coverage for Data and Entertainment

Our wireless networks today are more about providing data services than voice communications. We want to receive our emails and text messages everywhere, including the airport. Additionally, we want to use our smart phones and tablets to watch movies and play video games while we wait for our flights. Systems need to be designed to handle the peak capacity needs that may occur during that peak travel time around the holidays when flights are brought to a standstill by a snowstorm and the travelers are stranded with nothing to do but stream videos and video chat with their loved ones they are supposed to be home with.

Private Communications Networks

It is common for each airline to have a separate two-way radio network for employee communications. This can mean voice and data communication to baggage services, ground personnel at the individual gates and security personnel. The coverage for the airport can’t interfere with these private radio networks, and in some cases may need to help provide coverage for these services as well.

Public Safety Communications

After 9/11 public safety and protecting the traveling public has become a significant concern and mission of the airport communication system. The system must be robust enough to handle the needs of emergency responders and safety forces who are at the airport to quickly respond to any situation.
**Bird’s SingleNet DAS**

**Bird’s SingleNet** is a highly flexible unique fiber DAS solution that can be used in a shared neutral host system for all the wireless operators, handling multiple bands, sectors, and MIMO for each one. Additionally, other services such as Gigabit Ethernet, Wi-Fi, and CCTV can be distributed over Bird’s SingleNet DAS. It also provides flexibility of implementation for the wireless operators, offering digital transport for Remote Radio Heads (RRUs) and back-haul for Picocells and Femtocells. An IP65 rating and available battery backup keep the system up and running even in emergencies such as a fire or power outage.

**Master Unit**

Features a flexible Master Unit that can be equipped with Base Station Interfaces for each operator, sector and frequency band. This allows the system to be fully optimized for each operator as well as combining all services on a single fiber link to the Remote Unit.

The system is also MIMO-ready, meaning that you can set it up for a separate RF path to get as much out of your LTE network as possible.

- Ultra wide-band transmission, 88-2700 MHz
- All frequency bands, operators and sectors together in a single master rack
- Easy to add new services in existing frequency bands, connect and go
- Compact 19” rack design
- Web based UI for monitoring and control
- Alarm options include SNMP traps and local connections
- VPN tunnel to your Network Operations Center

**Remote Unit**

Remote units are all multi-band, multi-operator with separate amplifiers for each frequency band to provide the best possible coverage.

- IP65, -25°C to +55°C, no fans, minimal maintenance
- Wall mount or pole mount as needed
- 1-4 frequency bands in a single unit
- Compact and discreetly colored
- Up to 4 Remote Units on single fiber
- Output power up to 43 dBm per band

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