

**WHITE PAPER**

***SECURE RADIO NETWORK SOLUTIONS FOR BUSINESS***

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## Secure radio network solutions for business

The purpose of this white paper is to give the reader an appreciation for the security measures of the radio solutions being deployed by AirSpeed Telecom to deliver carrier grade IP or TDM connectivity.

Microwave Radio systems have been deployed by most, if not every fixed/mobile operator, police force and army force internationally. Traditionally microwave radio was deployed as a trunk or backbone network solution carrying all network traffic, including, Voice, Audio, Video and Data. This technology has evolved extensively over the past decade, therefore enabling AirSpeed Telecom to deliver multiservice radio solutions, capable of delivering IP and E1 connectivity, depending on customer requirements. These radio solutions are optimised for carrying real-time traffic which require very low latency end-to-end.

AirSpeed Telecom have specifically chosen carrier grade radio solutions to ensure the highest level of security and reliability. The following points outline the security measures of our proprietary radio systems.

### 1. Physical Security (Point to Point System)

The radio transmits a narrow beam of information to the far end point so any interceptor must position themselves in the "beam" of radio signals. This system is not like an FM radio signal which can be received pointing in any direction at any location. An antenna must be pointed at the transmitter (requiring its location to be known) with line-of-sight to the transmitter. This antenna must be capable of receiving microwave signals of the band concerned (there is no wide-band microwave antenna covering bands 6, 7, 8, 11, 13, 15, 18, 22, 26, 28, 32, 38GHz). Therefore, the interceptor must 1. know where the link ends are; 2. where the path traverses; 3. position themselves in the beam with an antenna of the correct frequency band to decode the signals... a major achievement to get this far!

### 2. Frequency/Modulation Security (Point to Point & Multipoint System)

AirSpeed Telecom use many different frequency channels and modulation schemes depending on customer capacity requirements and distance from AirSpeed tower infrastructure. In order to determine the exact frequency band, channel, bandwidth and modulation scheme, this would require the use of a specific antenna and extremely expensive telecommunication test equipment. These test equipment solutions are difficult to setup and configure for persons without vendor training.

### 3. Signal Encoding Security

AirSpeed Telecom's radio systems encode all signals to be transmitted in a proprietary manner. This means the customer data is first multiplexed with all other traffic, management, wayside & other overhead into a proprietary framing mechanism unused by other vendors & unpublished by our equipment suppliers. In addition, the system utilises proprietary signal scrambling, FEC encoding & other digital signal processing that effectively mixes up the data sent over the air in an apparently random manner.

### 4. Link ID security

Each radio link has an option to set a unique Link ID. This is a unique code (value 1-65000) that is assigned to each terminal in a link upon installation that allows only information from a radio with the same Link ID to be decoded. If Link ID of the received signal is not matched to that expected, then AIS ("alarm indication signal" - all 1's) will be output on the data interfaces of the radio and an alarm will be raised "Link ID mismatch."

Additionally AirSpeed Telecom offer end-to-end security for LAN extension solutions, using IPsec on our Secure Services Gateway at customer premises.

Please contact AirSpeed Sales for further information on our secure network solutions at Locall 1890 799 899 or e-mail us at [sales@airspeed.ie](mailto:sales@airspeed.ie)