

MNOs and Private Networks

TIM delivers licensed 3.7 GHz private network for ILMEA SRL



Who:

TIM (Telecom Italia) and ILMEA SRL

What:

5G for enterprise solution at ILMEA's Salento, Italy metalwork engineering firm which manufactures metal parts and machinery.

Spectrum:

TIM's 5G Private Network division provided the new network for ILMEA based on 5G NSA architecture. The 5G band reserved to the customer is the 3.7 GHz that Telecom Italia acquired during the national auction in 2018. TIM acquired a number of bands in the 2018 auction on top of the 80 MHz of 3.7 GHz spectrum used by ILMEA. This included 2 x 10 MHz in the 700 MHz band and 200 MHz of mmWave spectrum in the 26 GHz band.

While ILMEA SRL uses 3.7 GHz capacity, TIM's private 5G customers elsewhere use the 3.7 GHz mid-band capacity along with other spectrum including mmWave services to provide the lowest latencies for industrial connectivity.

Client requirement:

ILMEA required a private 5G network to improve efficiency in production processes through its core production lines. The TIM networks delivers IT - OT domain convergence in their production plant (i.e. linking information and operational technologies).

In particular, the private network is designed to manage and monitor the operations collecting data from production machines and using the data for predictive

maintenance and quality control. The network has been integrated with third party management systems (MES, ERP) in order to automatise the production processes and to improve their efficiency and performance.

ILMEA has been operating in Salento for almost 50 years and is using the network as part of its digitalisation process. The 5G coverage in the production plant and in the company offices is delivered by the installation of 19 antennas.

Solution:

TIM operates the network using licensed 3.7 GHz spectrum to provide its low latency, high-capacity private 5G solution. This led to an installation time of a few hours (against a wired system installation time of a month).

TIM 5G Private Network installed a complete dedicated architecture that includes both reserved frequency and dedicated network element deployed on the ILMEA manufacturing premises. The solution is based on non-standalone architecture and is provided in high

availability configuration to produce the necessary reliability for the industry 4.0 network. The service maintenance is delivered by TIM, involving the collection of private network service statistics (KPI , alarms) through the connection of ILMEA's network elements with the wider TIM network.

Performance tests have shown strong results both on throughput and latency. According to the test performed, the indoor performance are reported below:

	Average (on the entire area covered by the service)	Peak
DL Thp [Mbps]	650	800
UL Thp [Mbps]	50	90
RTT (ping) [ms]	12	10

