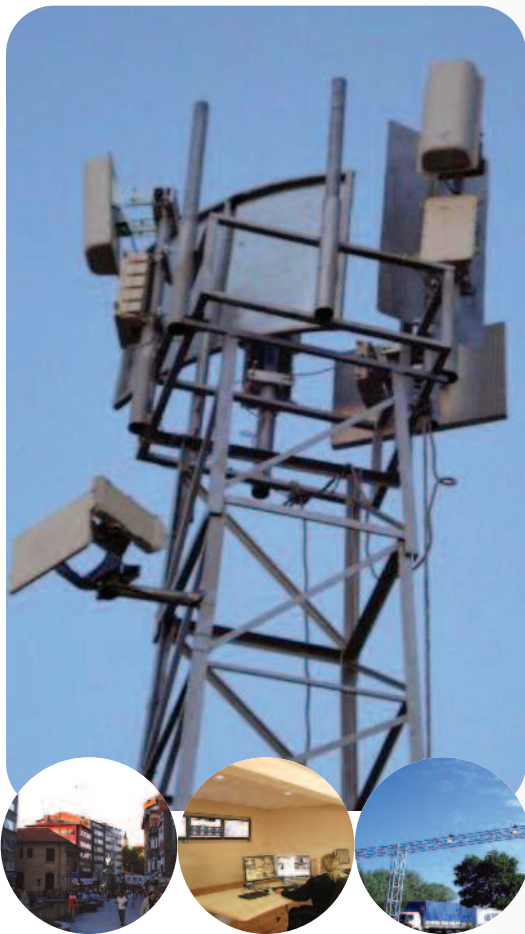


## Redline's RedMAX™ WiMAX Forum Certified® Products Provide Turkish National Police with City-Wide Video Surveillance



### The Challenge:

The Turkish Police in Kütahya city, Turkey, required a reliable, secure, low cost and high-bandwidth network for their 24-hour city-wide video surveillance project. The project entailed the deployment of multiple video surveillance cameras throughout the city of Kütahya. Deploying the high-capacity surveillance network posed a challenge due to interference of urban obstacles, which necessitated the use of many non-line-of-site (NLOS) network links.

### The Solution:

Redline's RedMAX™ WiMAX Forum Certified® solution was chosen for its ability to provide secure and reliable high-speed connections in non-line-of-site conditions. Global Forte, Redline's Certified Integration Partner and a leading provider of Turkish-based broadband wireless communication services, managed the RedMAX network installation.

RedMAX base stations were deployed throughout the city along with RedMAX SU-Os (Outdoor Subscriber Units). Redline's RedACCESS AN-80i products were used to backhaul the connection to police headquarters.

### The Result:

The Turkish police can now depend on a reliable high speed network for improved video surveillance and enhanced public protection. Redline's RedMAX WiMAX video surveillance system was first successfully implemented in the city of Simav within Kütahya province in 2007 and has been in production since then. After the deployment of the city-wide surveillance system in Kütahya, Global Forte was chosen to replicate the solution in two other Turkish cities, Tavşanlı and Gediz. Based on the success of this WiMAX network in Kütahya, the police force in Ankara, Turkey's capital, are now examining the feasibility of a similar deployment.

### How the Solution Works

Three RedMAX base stations were installed to achieve city-wide wireless coverage to connect the police department's video surveillance system. The base stations were installed at EGM (Emniyet Genel Müdürlüğü—*Turkish National Police*), Local and Germiyan sites.

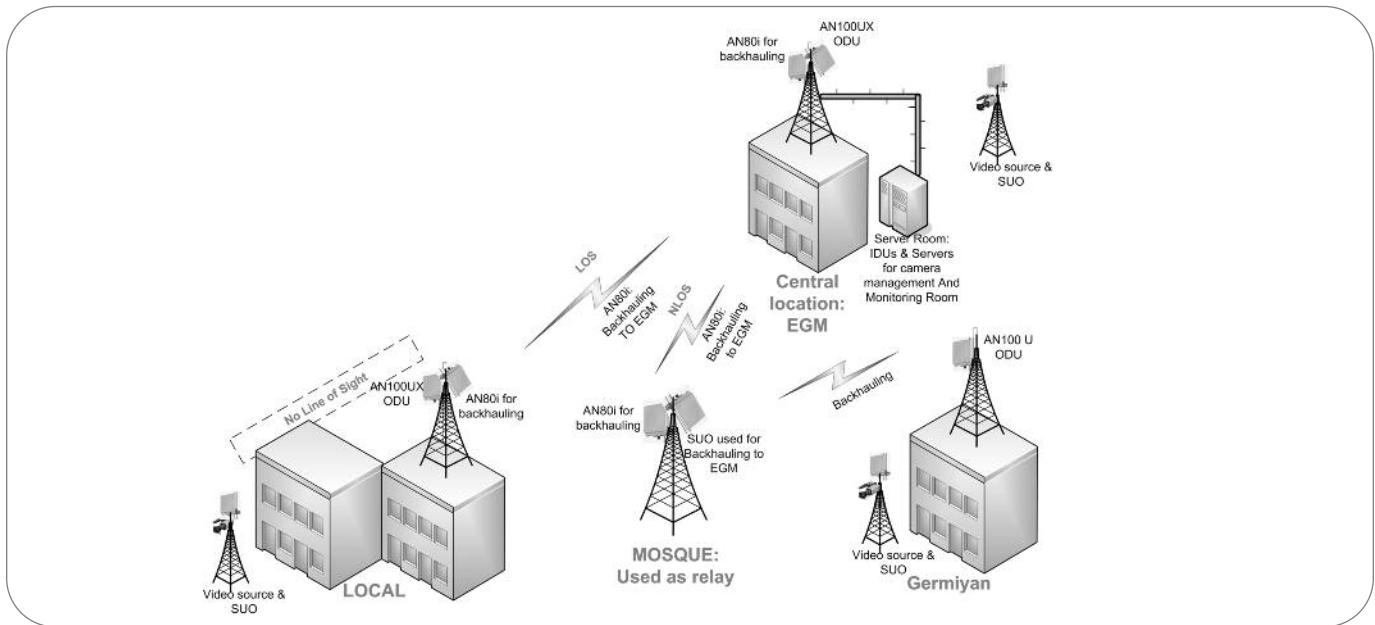
A coverage of 17 km x 7 km has been created and achieved through the installation of base stations in Kütahya. Within this area, 35 surveillance cameras (PTZ and Fixed) and 3 license plate recognition systems on 3 separate highways with 12 fixed cameras have been deployed.

The central monitoring system for the network is situated at EGM. Each RedMAX base station is connected by a RedACCESS AN-80i backhaul link. The EGM base station location consists of one RedMAX AN-100U sector controller connected to two 60 degree antennas. Four movable cameras (2.5 Mbps/camera) are then connected to this sector controller at the EGM through four SU-Os located at an average distance of 2.5 km (1 LOS and 3 NLOS).

The second site, Local, houses a base station that consists of three AN-100UX's, two with one 60 degree antenna each, and the third with two 60 degree antennas. Fixed and nomadic cameras are connected through 13 SU-Os (most of them NLOS) and once again backhauled to EGM via Redline's AN-80i.

The third site, Germiyan, is connected to EGM via a relay site. The base station at Germiyan transmits to a RedMAX SU-O on the relay site, which in turn is connected to EGM via a RedCONNEX AN-80i backhaul unit.

## Network Design



### RedMAX<sup>®</sup> AN100U

Redline's RedMAX AN-100U is the world's first WiMAX Forum Certified<sup>®</sup> base station. Easy and cost-effective to deploy, the RedMAX AN-100U facilitates the rapid provision of new fixed and nomadic wireless broadband services by service providers, while its very low latency ensures reliable delivery of time-sensitive services, including circuit-switched voice traffic, Voice-over-Internet Protocol (VoIP), video and prioritized data traffic. The AN-100U design architecture enables 'over-the-air' upgrades in the field through simplified software downloads and the ability to dynamically "on-the-fly" customize individual Quality of Service (QoS) settings, according to the service level agreement (SLA). The RedMAX Base Station can be deployed in clusters of up to six (60 degree) sectors, supporting thousands of unique user-data flows and hundreds of simultaneous subscribers per sector.

### RedMAX<sup>®</sup> AN100UX

The RedMAX Macro Base Station (AN-100UX + HTB) is an industry leading high powered broadband wireless solution capable of extending both capacity and range in the delivery of high bandwidth voice, video and data transfer services and applications. The AN-100UX is designed in compliance to the IEEE standards for WiMAX to be fully interoperable with a range of WiMAX Forum Certified<sup>®</sup> devices and meet the high standards for capacity and performance.

The RedMAX AN-100UX is easy and economical to deploy and enables the rapid provisioning of new services by service providers. Its low latency ensures reliable delivery of delay-sensitive services, including circuit-switched voice traffic, Voice-over-Internet Protocol (VoIP), video and prioritized data traffic. New subscribers can be provisioned dynamically with no downtime for existing users, and existing subscribers can have their service level agreements adjusted dynamically.

### RedCONNEX<sup>™</sup> AN80i

The AN-80i is the latest addition to Redline's RedCONNEX<sup>™</sup> family of high performance wireless broadband transport solutions. Delivering carrier-grade performance and reliability that carriers and other service providers have come to expect from Redline's wireless access and backhaul products, the AN-80i is the ideal solution for quickly establishing point-to-point and point-to-multipoint links that cost-effectively extend networks to reach more customers.

Operating in the license-exempt 4.9, 5.4 & 5.8 GHz band, the AN-80i leverages proven OFDM technology to deliver industry-leading, high-speed Ethernet throughput. With its exceptional long range capabilities, the AN-80i is able to establish and maintain reliable, robust connectivity that can exceed 80 km (50 miles) in clear line-of-sight conditions.

### About Redline Communications

Redline Communications ([www.redlinecommunications.com](http://www.redlinecommunications.com)) is the leading provider of fixed and mobile standards-based wireless broadband solutions. Redline's RedMAX<sup>™</sup> WiMAX Forum Certified<sup>™</sup> system, RedMAX 4C Mobile WiMAX<sup>™</sup> products, and its award-winning RedCONNEX<sup>™</sup> and RedACCESS<sup>™</sup> families of broadband wireless infrastructure products enable service providers and other network operators to cost-effectively deliver high-bandwidth services, including voice, video and data communications. Redline is committed to maintaining its wireless industry leadership with the continued development of WiMAX and other advanced wireless broadband products. With more than 100,000 installations in 85 countries, and a global network of over 170 partners, Redline's experience and expertise helps service providers, enterprises and government organizations roll out wireless broadband networks to support advanced communications.

### About Global Forte

Global Forte is a product and consulting company that specializes in the developing and marketing of high technology products, technology infrastructure and services in international markets. With its headquarters in Istanbul, Turkey and branch offices in Dubai and Kuwait, Global Forte is a provider of integrated business, technology development and consulting in the areas of **strategy, solutions** and **professional services** across the globe.