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APLICATIONS OF MULTILATERATION SYSTEMS IN AVIATION

The aim of my investigation was to find the alternative ways of performing of the airspace surveillance more effectively, precisely and economically(Fig.1). I found out that multilateration(MLAT) can meet all these requirements in the proper way.

In the past, the requirement to cover a given airspace could only be considered in terms of traditional Secondary Surveillance Radar performance, where the system's limitations often called for compromises in coverage, the need for additional "gap filling" installations or limitations on where aircraft could safely maneuver. With multilateration, those limitations no longer apply.

One of the earliest civil aviation applications of multilateration was in the monitoring of aircraft movements on the airport's surface. Today, multilateration is a vital element of Advanced Surface Movement Guidance and Control Systems (A-SMGCS), which are currently being deployed at many of the world's major airports.

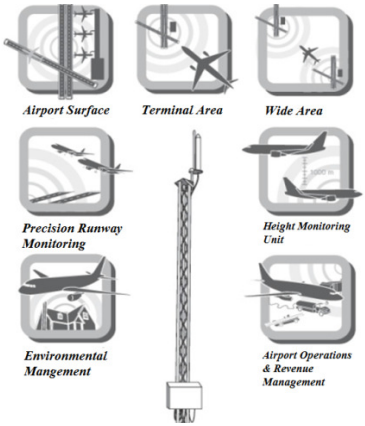

Fig.1 Ways of performing surveillance by means of multilateration.

Multilateration provide optimum terminal area coverage and — perhaps equally important — faster and more accurate tracking down to the airport surface, so it can be used for performing lower altitude operations in the terminal areas that are characterized by the presence of high terrain, which can block aircraft interrogations from nearby secondary radars.

Another one important application of multilateration is its proven ability to provide greater safety while significantly increasing landing capacity. While e-scan radars were cost-prohibitive, multilateration has now been demonstrated to meet and exceed radar specifications for precision runway monitoring, at substantially lower cost. MLAT Precision Runway Monitor capacity gains have been reported to be 30 percent or more, especially during peak periods with adverse weather conditions.

In Ukraine, installing MLAT system to control ground movement is planned at Kyiv (Boryspil) to perform the implementation of A□SMGCS. As to its cost efficiency and significant performance it is expected to meet this system in some other parts of Ukrainian airnavigation system.

So, in a conclusion multilateration can be seen as not only a tool to increase airspace utilization and operational efficiency, but as also offering significant economic benefits and flexibility.

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