

TECHNOLOGY SCREENING AIRLINE PASSENGERS

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The title of diploma thesis work is the Screening of Passengers by Observation Techniques. In the first chapter of work provides the interpretation of fundamental concepts. The second chapter defines the current state of legislation in the field of safety and the protection of civil aviation, through the analysis of the most important legal documents, regulations and laws as well as international level to the national level, thus the following defines a basic legal framework for the exercise of activities at the same time, also in the field of safety and the protection of civil aviation. The third chapter analyzes the performance of the activities of the screening, describes the various methods of screening of air passengers and baggage. Attention is paid to the available technical facilities used primarily on the territory of the Slovak Republic. The fourth chapter is dedicated to current and new trends in the field of technologies used for the security check. The last chapter is devoted to the considerations and proposals, which would be likely to increase and improve performance in the area of passenger screening.

K e y w o r d s: Aviation law, passengers and baggage, air transport, screening, technology, security control, equipment.

1 INTRODUCTION

Among the most progressive and dynamic emerging field of transport is undoubtedly civil aviation. The liberalization of the economic environment, rapid technological and technological development, mutual competitiveness between carriers and offers a relatively rapid innovation and long-term downward trend in prices, but also attributes such as comfort, speed, security and time savings are the reason why civil aviation has become one of the most services used for transporting people. On the other hand, we should realize that air travel is very specific, because of several thousand meters, the travelers and aircrew threats on their lives and health of even the smallest failure of human, technical and safety factor. That's why traveling public perceives any disturbance or threat to the safety of air traffic is very sensitive. In recent years we have witnessed the abuse of aviation, it is an event related to the terrorist attacks that occurred in New York and Washington on 11 September 2001, where various interest groups seriously jeopardize and undermine the safety of civil aviation, which confirmed that civil airliner, the failure of the safety factor can become a weapon capable of jeopardizing thousands of lives and the very security of the country. The need to minimize the security risks that in today's world there is no shortage leads all stakeholders, involved in any way for air carriers to take actions at all levels of the organization of world air transport as the regulation, as well as the work of the executive,

especially the application of technology processes and procedures for the rapid development of new technologies in the world, since the resulting risks to overcome the current airport security systems and therefore this procedure is necessary. The aim of this work is to provide an overview of the current legal regulation of relations in the field of safety and security of civil aviation. The core thesis is to describe techniques for screening passengers as well as activities associated with them. In the final part of the job opportunities will be designed to improve and streamline security procedures for air transport.

2 LEGAL LEVEL CIVIL AVIATION SAFETY

The activity of civil aviation security in the form of air transport involves many interactions between the various entities. These are relationships that civilized society must necessarily control law in the form of legislative acts - different laws, different legal nature and legal force. Various incidents in the air resulting in death or threat to passengers, causing or threatening to cause a variety of real damage, where we do not mean only or targeted attacks. deliberate acts damaging and endangering the safety of civil aviation, but also other costs and negligent acts which in many cases, may cause results described, called for a need to regulate the mutual relations law in the field of air transport. For the vast pieces of the acts and standards

designed to minimize the already mentioned risks is significant that by tying standards to the subject, it is the acts and standards mostly mandatory in nature, strict (rule of conduct is the identified, it is not possible from this rules of conduct under any circumstances, deviate) from the method itself and the formulation of a rule is more or less obvious that they have the character of the jussive, prohibitive.

In order to meet various safety criteria and regulations, it is clear that neither passengers using this mode of transport can not avoid some interference with their rights, whether personal, property or other. It is in this kind of transport is most noticeable at the moment when the passenger is obliged to undergo a security check. These facts can be considered as a reason why it is necessary to exercise control activities in all its guises and hence control, consisting of a variety of different technical devices, subject to the most unifying legislation. On legal regulation of relations in the field of aviation safety and can provide:

- a) consistency of the procedures themselves, consisting of technical activities,
- b) the effective exercise of control subjects participating in so doing,
- c) enforcement of the rights of all entities involved in air transport.

Due to the interdependence and indivisibility of the various standards, regulations, legal procedures for the actual performance of specific activities undertaken in the interests of aviation safety and we consider it in the next part of the work given to both the most important legal aspects, standards, regulations and important moment that contributed to the current state and level of aviation safety, as well as bodies and organizations that are involved and interact in the field of air transport policy at the international level, within the European Union and also on the state level.

3 SCREENING OF AIR PASSENGERS

The purpose of security controls and measures taken in relation to air passengers is to ensure that passengers are not carried forward into restricted areas and on board aircraft, weapons, explosives or

other dangerous object, device, which would be committing an offense. It is therefore necessary to ensure that prior to boarding the aircraft, all passengers from the country of origin and their luggage screened. Additional security controls must also be subjected to transfer and transit passengers and their luggage. Performance of security controls is also designed to prevent the mixing of the passenger terminal, which already have been screened and those who have not had it yet. This measure also applies to transit passengers for transit stops left the plane.

In the event of a breach of this measure would lead to mixing of transit passengers with unchecked other persons, which would mean that before re-boarding the aircraft must be transit passengers and their luggage onboard Screened.

To achieve the objective of the prepared thesis, for the purpose of presenting our security checks on airline passengers as a model situation, we select the triggering process at the international airport in Kosice. Response process begins by registering themselves in the workplace, passengers 'check in', where the airport operator by its own staff makes the initial steps of this process. Passengers on a travel document, an electronic ticket or other document is then equipped with the operator's system for a particular airline. The triggering process consists of equipment and luggage. Another part of the process, stop the exercise of security checks of passengers and their luggage.

a) Control system for the walk people

Its performance enables high efficiency and speed control subjects.



Figure 1 Multi-zone metal detector frame - Metor 200 HD

b) Hand held metal detector

Using hand-held metal detector used to detect a search of small metal objects.



Figure 2 Hand held metal detector

c) Technique for profiling of airline passengers

Some countries and air carriers to use this technique to identify passengers who come from the so-called risk countries. This person is from a security point of view necessary to pay attention. Implementation of this control to close check-in requires a separate detection area. Profiling airline passengers requires close cooperation between secret intelligence and security organizations. In addition to this control leads to prolonging the time the dispatch process.

The condition for the implementation of this process at the airport is knowledge of the relevant risk profiles and the presence of skilled personnel who can interpret and apply operational information available. In the case of an increased threat to civil aviation safety, this technique can be used in combination with 100% screening of checked baggage.

d) An additional method - scanning shoes

This device is used when the passenger in the transition frame metal detector recorded the presence of metal parts in shoes. Screening of hand luggage.



Figure 3 Detector shoes

e) Screening of hand luggage

Hand luggage is subjected to security check technical equipment. This is the luggage which the passenger carrying the aircraft.



Figure 4 X-ray machine for checking hand luggage

f) Screening of checked baggage

Carry out X-ray equipment. Checked baggage means baggage, which is designed to transport cargo in the aircraft.



Figure 5 X-ray machine to check baggage

g) Hand search

Hand search means a physical search of the luggage and its contents. It is suitable for operation with low volume of passengers carried because it is quite resource intensive and time.

4 CURRENT TRENDS USED IN THE AREA OF SCREENING AIRLINE PASSENGERS

Currently used for screening in the previous sections have presented technical equipment but will be presentations on other specific equipment for the analysis of gases, explosive detection and control of liquids and gels.

At the same equipment used should be modernized to increase their effectiveness in light of technological developments and the possibility of overcoming this could result in actual threat to safety.

a) Gas analyzer

Gas analyzers are commonly used as a supplementary device to other technical devices, X-ray



Figure 6 Gas analyzer

b) The detection of explosives and explosive devices

Explosive Detection System (EDDS) is a system or combination of technologies, having the ability to detect and indicate their own way, warning of explosive devices contained or incorporated in the luggage.



Figure 7 Explosive Detection System (EDDS)

c) Device for control of liquids and gels

Increased risk of transmission capabilities of liquid explosives on board aircraft in hand luggage is the main reason for the checks.



Figure 8 Scanner fluids

5 NEW TRENDS IN THE SAFETY OF AIR PASSENGERS

This chapter presents the latest screening techniques used in the most advanced airports in the world or being put into practice. These systems are subject to further development and modernization. Some of the new screening techniques, we do not yet approved by the European Union legislation. These new techniques are described technologically and graphically illustrated.

a) Biometric CCTV systems

At present, in connection with the provision of information and identification of people used the latest technologies that can clear the way to identify individual personal identity. With technological advances come into focus as well as new ways to identify, especially those in which there is no need for direct interaction with the human element of being detected.

b) Identifying people by face

Digitized bitmap face reflecting optical interpretation of the face under consideration, the person is the basis for biometric analysis. An important factor for this analysis is that people face

are unique and characteristic features of their possession. A digital system can therefore be clearly distinguished and parametrically evaluated.

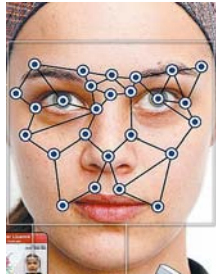


Figure 9 Digitized bitmap face

c) Identification of persons by iris

The safest and most accurate method of biometric technology is currently identifying persons by their iris with special optical instruments. Every individual is unique and eye iris except they are not identical twins.



Figure 10 Device for capturing iris

d) Identifying people by their fingerprints

In forensic practice is recognized methods as identification by comparing the fingerprints of what deals Fingerprints. It is the doctrine of the ridge shapes, which are different for each person.



Figure 11 Patterns ridge

Equipment for fingerprint works on the principle that light through an optical prism refracts and reflects the fingerprint of the photosensitive layer.



Figure 12 Equipment for fingerprint

f) Full-body scanners

The latest technology used in security checks in the air can certainly include whole-body scanners. Currently only used in some countries (USA, Britain, Holland, etc.). EU legislation does not allow them. There are two types of these devices. The first type of device is based on the principle of using high frequency electromagnetic radiation. The second type of device is re-radiation.

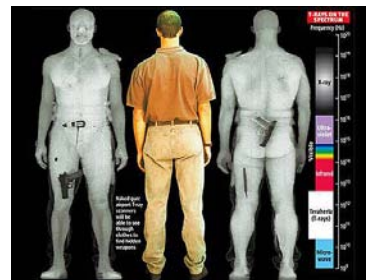


Figure 13 Full-body scanners

g) Screening of air passengers' viewing techniques

This new method of control of air passengers in the EU are not legal reasons. It is mainly the domain of some selected airports in the USA. Screening of air passengers by observation techniques is a program to increase protection of air traffic. This program is based on the principle of observation and analysis of airline passengers.

h) Proposals for screening airline passengers

During the processing of this thesis were collected details of the current legislative status of the actual performance practice of screening airport workers as well as theoretical knowledge and staged literature. Lessons learned in the next section were given suggestions for improving the effectiveness of the selected model Airport Kosice, as the structure of the airport is different and therefore these proposals can not be generalized. The proposals are organizational - tactical, operational - the logistics and technological nature.

6 CONCLUSION

An analysis of legally regulated relationships can be concluded that the Slovak Republic shall apply the legal standards of the European Union, a sufficient degree to provide a legal framework for that area. Regulation of the European Union defined the basic safety procedures, but also left room for individual Member States to adopt restrictive measures, which are in conformity with the technical possibilities of the national airports. It is clear that the modern international airports equipped with the latest technology so passengers will not feel that it is controlled as a small airport with limited capabilities. We have shown that the regulation of relations in the field of safety and air traffic control process must be dynamic, capable to flexibly respond to new security risks associated with air transport, the current technological developments in the world, as well as the possibility of applying new technological processes in practice.

I believe that the goal of work in terms of describing techniques for screening airline passengers has been achieved, and that in addition to current techniques, it was pointed out at work and new trends in this area. As the Kosice airport was chosen as a model to describe the performance of security checks, so most of the proposed measures related to an airport Košice but nevertheless it is possible these proposed measures also apply to EU airports. Proposals for the possibility of increasing quality control and evaluation of their effectiveness is undoubtedly left the reader of this thesis. It should be noted that the latest technology is a threat to human error, therefore it is necessary to emphasize the need for regular retraining of personnel security controls, to keep them in concentration at work, under any circumstances to avoid a reduction in the quality control exercised.

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