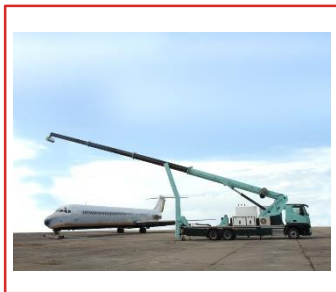


AIRCRAFT SCANNING - INNOVATIVE SECURITY SOLUTION for BOMB THREAT CLEARING
„AVIATION SECURITY” – BOSTON – November, 2016

**I have for you as many questions you might have for me,
but I have also few answers! Mircea TUDOR, CEO of:**



Who we are? TUDOR Scan Tech Products Range



TUDOR Scan AERIA
Innovative & unique
solution for security
screening of aircraft



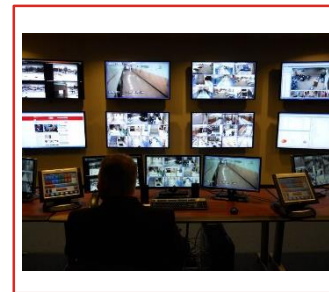
TUDOR Scan ML64
Robotic trucks scanners
based on dual energy
LINAC technology



TUDOR Scan 1MC
Robotic trucks scanners
based on dual energy
Gamma technology



TUDOR Scan OCV
Low dose X-ray solutions
for scanning of occupied
cars and vans



**Integrated Security
Systems for airports,
seaports, borders,
homeland protection**

International Recognition of our technologies



The Grand Prix of the 37th
International Exhibition of
Inventions of Geneva 2009



Gold Medal 37th
International Exhibition of
Inventions Geneva 2009



WIPO AWARD
World Intellectual Property
Organization Award for Best
Inventor 2009



Gold Medal International
Warsaw Invention Show
2009



Gold Medal – The International
Invention Fair of the Middle East
– Kuwait 2008



The Grand Prix of the 41st
International Exhibition of
Inventions of Geneva 2013

What are the THREATS we can solve?



- Global Civil Aviation is facing exponential increasing number of bomb threats in average of one per day, at least one per week being related to aircrafts;
- Real bombs can pass over the current security procedures, being placed in the aircraft, usually inside technical cavities that **are not accessible to be inspected according to current aircraft clearing procedures. Is this a systemic vulnerability?**

Video source: <http://www.bbc.com/news/world-middle-east-36961913>

- YES, the Civil Aviation is subject of a **Systemic Vulnerability** that terrorist groups are using to transform the safest mode of transportation into a weapon of fear and terror.

Insider threats are a reality today as per NEWSWEEK - March 06, 2016

<http://globalincidentmap.com/incidents.php?typeid=1>

What are the current clearing procedures?

Nothing changed since romans times!!!

Current aircraft inspection procedures rely heavily on manual checks, visual inspection and sometime canine controls.

In absence of technological support and without the possibility to inspect all technical cavities of the fuselage, wings and tail, the security inspection **cannot guarantee 100% clearing of civil aircraft under bomb threat.**

Is this a systemic vulnerability?



How do we protect the 7 billion of innocent air passengers?

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In absence of technological support and without the possibility to inspect all technical cavities of the fuselage, wings and tail, the security inspection **cannot guarantee 100% clearing of civil aircraft under bomb threat.**

Is this a systemic vulnerability?

- ❑ **Hours of airport operation disruption during the clearing of a bomb threat can generate millions of USD loss and chaos in air traffic**
- ❑ **Frequent threats can affect the mindset of passengers, that could consider flying unsecure and life threatening, with long term negative effects across the international civil aviation.**
- ❑ **The airplanes arriving from low security/ high risk origin of fly are vulnerable of caring threatening items on board !!!**

Do we need a solution to cover this gap in security ?

**IF THERE IS THIS A SYSTEMIC VUNERABILITY,
DO WE NEED URGENTLY A SOLUTION ?**

**YES, the civil aviation must consider
TODAY new aircrafts security clearing
methods as reliable and time saving
alternatives to current vulnerable and
time consuming procedures, in order to
close the technological gap in aircrafts
security inspection**



Finally an answer: TUDOR Scan AERIA – The Solution

TUDOR Scan AERIA DV - Dual View scanning solution brings finally the technology support in the Preventive Security Measures, as recommended by **ICAO Annex 17**, expanding the Measures Relating to Aircraft's Protection close to **100% confidence in security screening, to ensure and guarantee that civil airplanes, as main vector of air transportation, are free of any threatening objects and prepared for a safe fly.**

A civil airplane flew one month with 25 missing screws after unprofessional service done in Asia!!!

The scanning process can also reveal instantly some mechanical or structural anomalies of the aircraft as safety add-on facility.

Youtube link to AERIA DV - MD 80 dual view scan film

<https://www.youtube.com/watch?v=wzfyvuytzk>

**UNPARALLEL FAST SECURITY SCREENING
METHOD for CIVIL AIRPLANES**
**Scanning of a narrow body airplane takes
less than 5 minutes**



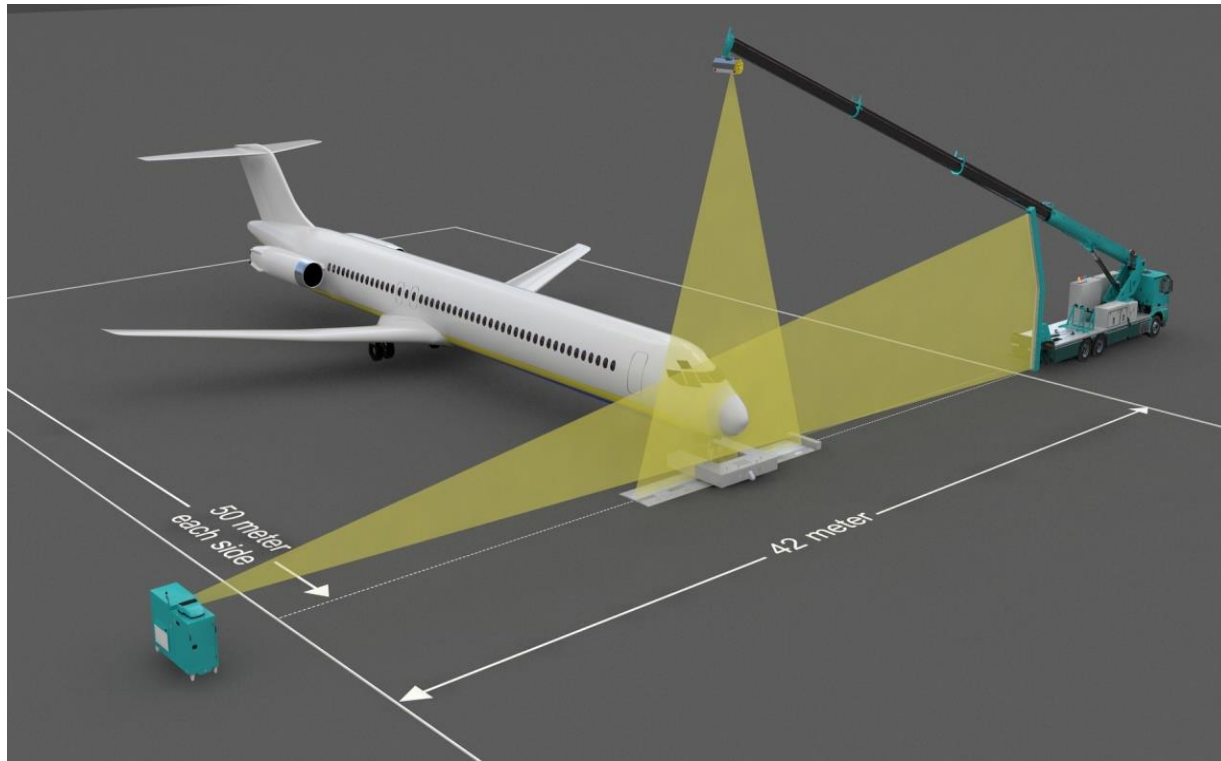
TUDOR Scan AERIA – Key Features

- TUDOR Scan AERIA is the first and only X-ray scanning technology developed for full aircraft fast and reliable security inspection of fuselage and wings, offering a solution for the systemic vulnerability of the civil aviation;
- Ideal tool for clearing aircrafts under bomb threat - **100% YES/NO within few minutes time, versus few hours of physical inspection and no certitudes concerning the presence of a bomb on board**, as per the actual clearing procedures due to limited access to inspect all the technical cavities of the fuselage, wings and tail;
- Efficient tool to discover illegal transports of explosives, guns, narcotics, cash money, etc. hidden anywhere in a plane and for high-security objectives such as VIP planes;
- Fast preventive security inspection method for airplanes arriving from low security/high risk origin of fly.



- Capable to detect sub millimeter objects and eventual mechanical or structural anomalies of the aircraft;
- Dual View imaging system - simultaneous top view and side view;
- Dual energy imaging system for material organic/inorganic separation
- Remotely operated; no human presence needed inside the scanning area;
- Fully mobile solution for maximum flexibility in operation;
- Integration in Command and Control Center as standard facility.

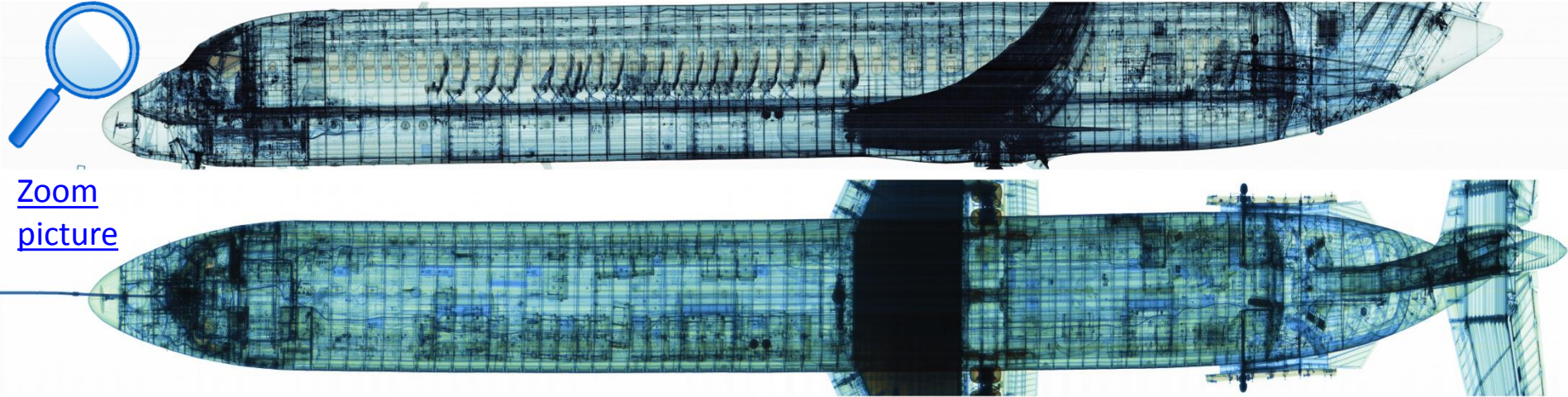
TUDOR Scan AERIA – The technology



- TUDOR SCAN AERIA is a mobile, non-intrusive system that allows the scanning of aircraft by using dual collimated X-ray beam oriented towards vertical and horizontal detector lines.
- The scanning process is performed by pulling the aircraft using a certified robotic tug at a constant speed through the radiation triangle shape „curtains”.
- The standard model can scan up to narrow-body aircraft. Wide body aircraft scanners can also be offered.

MD-80 Dual View Scanned Image

Material Separation organic/inorganic imaging helping the operator for faster decision

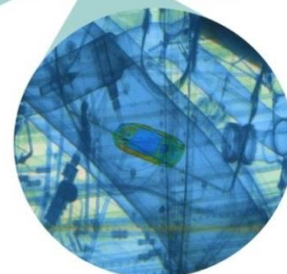
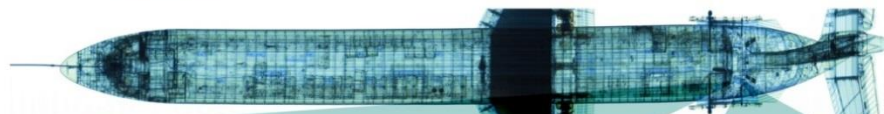
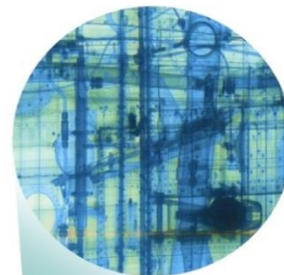


[Zoom picture](#)

The scanning process generates in real time a Dual View and Dual Energy radiography of the aircraft fuselage. The wings can be scanned by additional passages. The images are displayed in the international color code for material separation, discriminating between 4 classes of materials:

- **Orange color** for organic – all explosives, narcotics and money in cash are organic, easy to be identified
- **Green color** for inorganic / light minerals – aluminum, titan, etc.
- **Blue color** for medium density metals – steel
- **Black color** for heavy metals - iron, lead, tungsten, uranium.

Threatening objects hidden onboard



The **transmitted x-ray image** is the recommended solution for security applications, being the only one that can penetrate the full body of the aircraft under inspection.

By zooming software function, the image can reveal very small objects like wires, batteries, detonating devices, weapons and the existing loaded ammunition virtually all type of threatening or contraband objects hidden anywhere inside the body of an airplane.

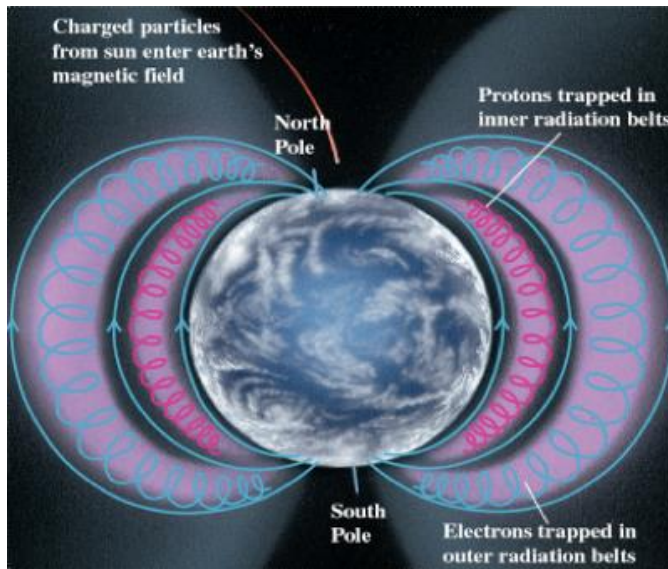
Example: An AKM gun and a 300 grams bomb with phone detonator hidden inside a ventilation tube of an MD80.

How safe is the scanning technology?

For humans; totally safe, as there are no humans inside the scanning area. All processes are remote controlled reducing to ZERO the professional exposure.



For airplanes; totally safe, as the avionics is made by design to operate continuously in high radiation environment as is the case at high altitude. During the scanning process, the avionics is exposed to a low dose of x-ray (5-7 micro Grey; **20 million times less than the critical level**), being switched off.



The cosmic radiation field at 35,000 feet is **20 to 40 times more intensive** than on sea level

ICAO Annex 17 Recommendations

ICAO Annex 17 recommends that each Contracting State should promote the research and development of new security equipment, processes and procedures which will better achieve civil aviation security objectives and should cooperate with other Contracting States in this matter.

We consider the achievement of our group of companies as a direct deliverable of this recommendation. Next step would be its introduction under the regulatory authorities for testing and validation of its direct and indirect benefits in the security and safety fields of civil aviation. For this objective we are ready to contribute as reliable partner in trial, validation and implementation of better security technologies, procedures and standards in civil aviation.

We are looking for national and international partners to cooperate in the validation project!!!

A FINAL QUESTION:

How we will justify in front of relatives of hundreds potential innocent passengers sacrificed ... if a new tragedy will happened while this technology exists, but it is not yet applied



THANK YOU! ANY QUESTIONS?



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MEDIA LINKS: CTV News AERIA: <http://www.ctvnews.ca/video?clipId=462744>

National Geographic documentary; minute 23:00 to 27:00:

https://www.youtube.com/watch?v=_mkIT45zzC8&t=23m48s

Daily mail article: <http://www.dailymail.co.uk/sciencetech/article-3052031/The-scanner-scour-entire-PLANE-Mobile-device-weapons-drugs-hidden-onboard>

London Times article: <http://www.thetimes.co.uk/tto/technology/article4419752.ece>

Financial Times: <http://www.ft.com/intl/cms/s/2/6501ff82-f95f-11e4-ae65-00144feab7de.html#axzz3ogPMeXTv>

<http://www.libertaddigital.com/ciencia-tecnologia/tecnologia/2015-05-13/desarrollan-un-escaner-para-aviones-que-detecta-bombas-en-segundos-1276547900/>

<http://www.rts.ch/info/economie/7759877-une-societe-roumaine-delocalise-en-suisse-et-confirme-vouloir-creer-130-emplois.html>

L'IMPARTIAL July 08, 2016: «si l'avion israélien qui a dû être récemment escorté par nos avions de chasse, en raison d'une alerte de bombe, avait été scanné par un tel appareil, (o.n.TUDOR Scan AERIA) cette intervention n'aurait pas été nécessaire.»

Guy Parmelin – Defense Minister of Switzerland