

The shooting down of the Ukraine B737 flight PS752 by the Iran air defence system during a heightened alert is a human error with disastrous consequences. The relocation of the air defence unit and the misalignment of the weapon system is said to have initiated the chain of errors. However, **it is incomprehensible how departing from Iran and rising, the reasonably sized signature projectile can be considered as a threat.**

[The factual report](#)

Excerpts of the factual report

After the **relocation of one of the air defence units of Tehran, clearly causing a change in its heading, a failure occurred due to a human error in following the procedure of system north alignment. As a result, a 107-degree error was induced in the system.** As such, while the PS752 aircraft was flying, the direction of objects and targets detected by this system was being observed with an increase of 107 degrees by the operator. Such a functional failure initiated a hazard chain, which, of course, could be controlled providing other planned measures are implemented.

At 02:43:56, **the air defence unit operator detected a target at his 250-degree azimuth, flying on a 52-degree course. At the same time, after takeoff, the PS 752** had been flying towards the defence system from a 143-degree azimuth. The aircraft was passing a 309-degree course.

At 02:44:21, the operator notified the specifications of the detected target to the Coordination Center over the communication network (note paragraph 10 on the communication status). **The target was, in fact, the very PS 752 flight departing from IKA, detected by the system as a target approaching Tehran from approximately the southwest.**

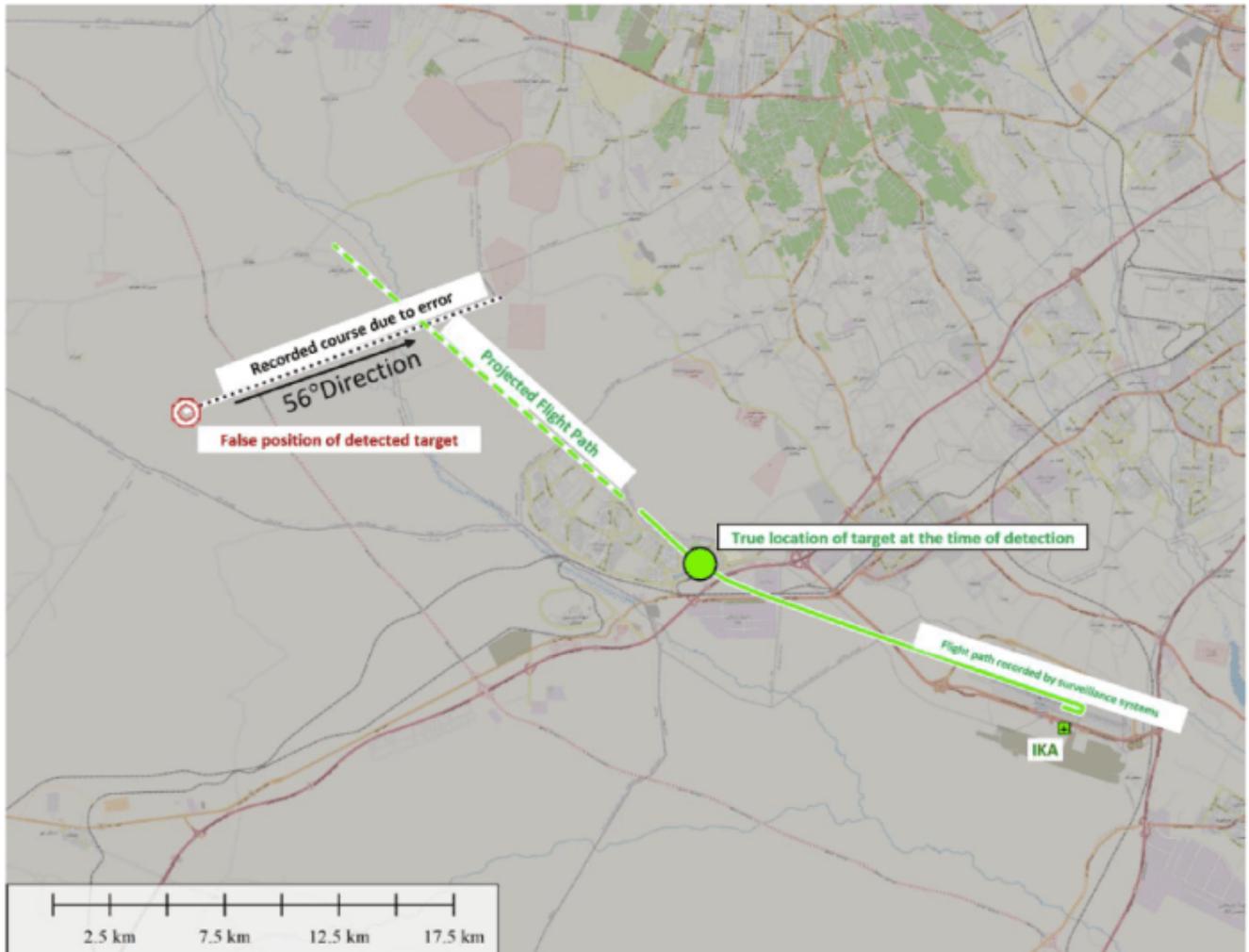


Figure 2- The true location of the aircraft at the time of detection and the false location and course due to north alignment error

Misalignment

System operator's analysis

The system operator began analyzing the observable information and categorized the detected target as a threat. Although the likelihood of identifying the target for a threat was considerably raised due to his lack of awareness of the 107-degree error, yet still if at this point he had identified the target as a passenger aircraft, the missile would not have been launched. The wrong identification is another link in the chain of events.

At 02:44:41, **without receiving any response from the Coordination Center, the air defence unit operator fired a missile at the threatening target he had detected.**

Under the applicable procedures, if the defence system operator cannot establish communication with the Coordination Center and does not receive the fire command, they are not authorized to fire. This measure had been planned as another error prevention layer, which was not implemented either.

At the time of firing the first missile, the aircraft was flying at a normal altitude and trajectory. The aircraft ATC transponder and ADS-B5 signals were received properly.

The missile radio fuse was activated when the aircraft had reached the last position recorded by the dependent surveillance systems. The activation occurred at 02:44:59.

After the first missile radio fuse was activated, the air defence unit radar still locked on the target, and the defence system kept detecting and tracking it.

By observing the continuity of trajectory of the detected target, the second missile was fired at the aircraft by the operator of a defense system at 02:45:11.

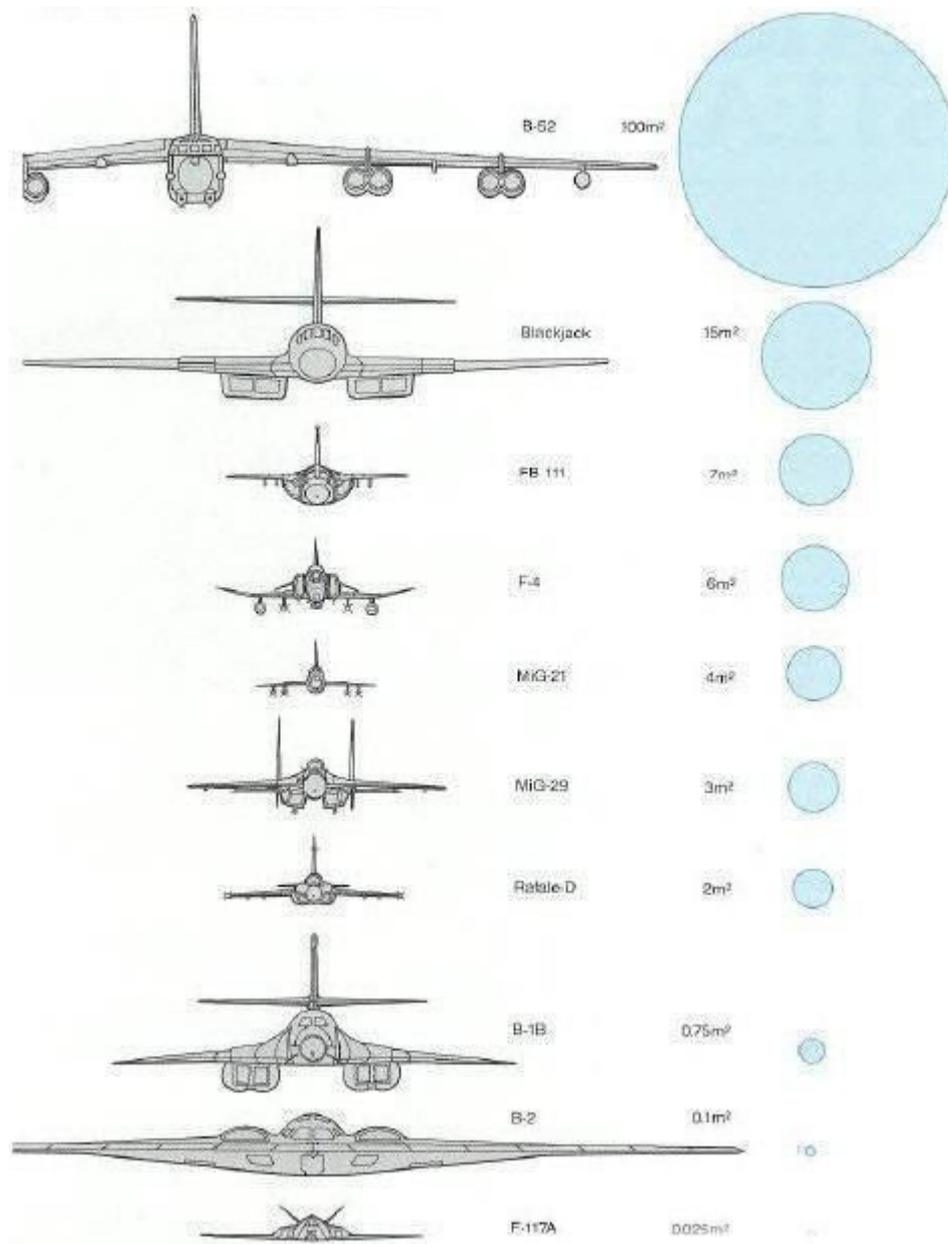
mindFly analysis

The factual report lists the sequence of events and attempts to put the onus of the error on 2 events:

1. **Misalignment of the air defense units**
2. **Breakdown of communication between the operator and the coordination centre.**

Inspite of the two major events leading to the execution of command to shoot down the

aircraft, a simple fact cannot be ignored. The operator would have identified the projectile by the radar signature. It could have been a cruise missile.



RCS signature of military aircrafts.

The RCS of B-737 is approximately 100m square. It is quite an unconvincing

argument that the operator detected a threat of a large sized projectile, which according to its RCS could not have been a missile, originating from within Iran territory, gaining altitude and moving away.

The final report will need to answer some very pertinent and tough questions to justify the chain of errors.

[Who is responsible for the dismal aviation safety record of 2018?](#)

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