Bericht van @MH17REPORT

Marcel wrote:

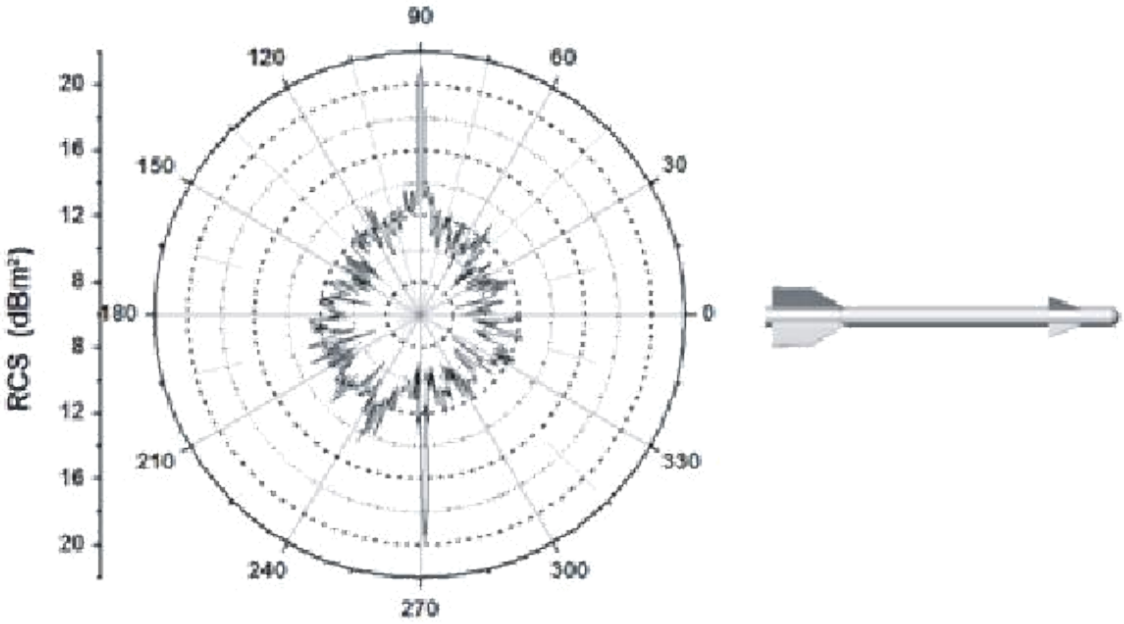
"You don’t need to be a master in mathematics to understand the surface of the missile when launched from Snizhne is much less than when launched from Zaroshchenske. So a lesser surface detected by radar means lesser reflection and thus detection."

When talking about "lesser surface" for radio waves (**RCS** - radar cross-section) and angles we need to look at more than simply visually estimating the situation or applying some kind of analogy to visual light. Radio waves behave simply not as straight forward, they propagate a bit differently depending on the materials and curvature.
Here is the situation from the MH17 shoot down drawn in a crude way but the general idea is clear: the red waves will hit the blue trajectory from the side or slightly from the front while the yellow trajectory will be hit from behind. This small difference matters a lot but not because, as Marcel suggests, that there would be "less surface" with a DSB trajectory.


Blue: alternative missile trajectory suggested as likely Almaz Antey after analysing damage patterns on the wreckage
Yellow: missile trajectory as proposed by main line JIT report and final DSB report.
Red: estimated direction radio waves from radar installation.
**note**: it's not necessary for the missile trajectory to be this straight in reality and neither is it certain where the red beam intersects. However for the this particular challenge is does not matter at all.

Open source data from various tests performed on the RCS of missiles would indicate there is actually *more surface* (RCA) for the waves coming at various angles from the back side because of the presence of tail and exhaust elements. The waves do not *glide there*, do not flow over the surface as nice as from the various frontal angles. This makes a lot of sense when you realize *many times the enemy will face the missile from the front*. The detection therefore is expected to be less at the front as design choice.
The following illustration shows a scientifically measured RCS for a standard large missile shape. There you can see clearly how the front view has a few dB less per surface hit (square meter). Keep in mind that **3dB is 50% difference** in terms of "reflective surface". There is obviously not much data of this particular property for particular weapon systems (obviously) but this example demonstrated the principle with A2A missile of

2.9m long (9M38 is 5.18 m). There is simply not that much data available which suggests as clearly what kind of patterns one could expect with the missile shape.




Source: A Medium Open Range Radar Cross Section Facility in Brazil, published and peer reviewed by PIERS (online)
https://www.researchgate.net/publication/267953384_A_Medium_Open_Range_Radar_Cross_Section_Facility_in_Brazil

Summarized:

Open source data suggests the shape of a medium sizes missile offers overall a distinctly larger reflective surface for radio waves at the back compared to the side or front. Radio waves coming from behind at any angle won't be able to be directed away like those coming towards the front and as such simply will behave like having a significantly **larger** RCS. Therefore the statement that "the surface of the missile when launched from Snizhne is much less than when launched from Zaroshchenske" **can be proven to be extremely unlikely** when it comes to radar and RCS. One would assume that any supposed launch from Zaroshchenske would be more difficult to detect based in simple experimental physics.

There are a lot more studies backing this up but only one simple experiment is here provided for clarity.