France's Grand Master 200: Armenia's new acquisitions
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Armenian Defense Minister Suren Papikyan and the French *Thales Group* in October 2023, in Paris, signed a contract that will deliver three GM (Grand Master) 200 radar units to Armenia. France's recent delivery of the Grand Master 200 radar has sparked discussion in Armenian politico-military institutes due to the symbolic nature of the sales. The Armenian Armed Forces are in dire need of procurements that will lead to successfully combating hard-to-detect unmanned aerial vehicles (UAVs). In any case, these procurements are a step in the right direction, if the necessary doctrinal, training and technical supports are part of the sales package.

The need for radar systems that have been designed for slow moving and low radar cross section (RCS) targets from the design stage and have potential to pass target data to engagement radars are critical to alleviate the struggle to take down Bayraktar, Harops and other hard-to-detect aerial targets. The technical parameters on these specific drones that Armenia faced during the 2020 44-Day War should be available and attainable and need to be uploaded into the radar's configuration to reduce clutter and improve detectability. However, it is difficult to discern if Bayraktar/Harop parameters such as size, speed and relative altitude have been uploaded into these systems and if France would go above and beyond their call of duty to support Armenian technicians on the detection of the unmanned aerial vehicles that Armenia is facing.

Furthermore, long-range radar systems that can detect deep into Azerbaijan are a must for Armenia's air defense capability. The *Minstrel* system that is also being sold to Armenia by France is a short-range system, not very effective when Bayraktar uses standoff weapons staying out of range of surface-to-air missiles. There is a notion that both France and India are still selling hardware to Armenia that will not be effective on the battlefield as Armenia requires long-range SAM systems with deep detection into Azerbaijan. The Grand Master 200 covers medium-range detection; however Armenia still needs effective long-range SAM systems.

Currently, three radars are very limited in its capability as an early warning radar system, however if larger numbers are procured they can add a valuable part to Armenia's early warning mechanism. Notwithstanding the potential lack of integration with either the newly purchased *Akash* systems or the aging *S300* systems, its effectiveness as a standalone early warning radar will still bear limits. However, if the systems can pass down target track

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through an integration with engagement radars or directly to French-made long-range SAM systems, it can prove to be a decent acquisition. This integration should include a combination of low and high altitude SAMs in an overlapping manner. Moreover, if site placement issues are alleviated to reduce radar horizon issues, and emplaced atop mountains with passable roads, with auxiliary shoot and scoot hideouts – critical in ensuring that the radar can perform to its potential, – these systems could provide the Armenian air defense an edge.

Weak shoot and scoot tactics during the 44-Day War allowed for successful Azerbaijani Suppression of Enemy Air Defenses (SEAD) operations. These doctrinal and operational skills, such as shoot and scoot tactics, are part of an overall air defense strategy to support the survivability of these systems and training and doctrine must come from the designers and exporting nations. This training does not exclude further research that needs to be implemented by Armenian researchers to adapt and integrate within Armenia's doctrinal approaches. Lastly, the most important liability against these systems are the technical frequency hopping or adjustments that are necessary in real-time to keep up with the everchanging electronic warfare battles. Armenian technicians need to be trained and versed in this field by France.

Hesitation and static defense concepts were one of the larger contributors of failure from the air defense battle plan from the 44-Day War and without doctrinal support from France purchasing these systems alone will not amount to any spectacular improvement in performance. In any case, it is a step forward for Armenian procurement, however in view of these steps, without meticulous training, integration, purchase of new long-range SAM systems and technical assistance these systems are essentially a symbolic gesture that can only lead to more complacency for the Armenian people and Armed Forces.