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The Maiden Test of Pakistan's Ra'ad II Cruise Missile: An Overview

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Recently on 18 February 2020, Pakistan conducted the maiden test launch of its Ra'ad II nuclear capable air launched cruise missile (ALCM). The Ra'ad-II was displayed for the first-time in 2017 Pakistan Army military parade. It is a subsonic, nuclear capable, turbojet powered ALCM, with a reported range of 600 km. The range of the missile was initially claimed as 550 km[1]. It is an improved version of Ra'ad (Hatf 8) air launched, dual capable cruise missile which has been developed by Pakistan since 2007 and has a range of 350 km. Pakistan claims that the Ra'ad missile system is indigenously developed, but it bears resemblance to several South African standoff missiles, including the MUPSOW cruise missile and Torgos long range guided weapon. [2]

Ra'ad II is stated to be a low altitude terrain hugging capability with high manoeuvrability which enables it to avoid detection by missile defence systems.[3] The missile is also claimed to have enabled Pakistan to achieve air delivered strategic standoff capability on land and at sea. The Inter-Services Public Relations (ISPR) press report stated that both of Pakistan's Ground Launched Cruise Missile (GLCM) Babur and ALCM Ra'ad missile systems are "low altitude terrain hugging missile with high manoeuvrability" with "pin point accuracy" and "stealth capability". ALCM Ra'ad's air delivered strategic standoff capability makes it a unique system. Although the missile system is under development and might take several years before becoming operational, it promises the potential to undermine the effectiveness of adversary's air defence system. A small, guided standoff weapon like Ra'ad provides an effective means to attack aircraft and facilities, while being difficult to detect and engage. An attack that used this type of weapon could directly affect the ability of an airbase to launch and recover its aircraft. Having said this, the missile's full capability will only be realised on its complete development. Analysts have observed that Babur and Ra'ad, both cruise missile systems are structurally much smaller and slimmer than Pakistan's ballistic missile

systems, which might be an indicator of Pakistan's capability of warhead miniaturisation based on plutonium instead of uranium.

Islamabad's need to develop longer range air launched cruise missile with terrain hugging capability and high accuracy to avoid detection might be driven by India's modernisation of its air defence system by procuring systems such as S-400. It is noteworthy that in last few years Pakistan's cruise missile development programme has expanded rapidly. This is evident from the fact that it has tested three new variants of cruise missiles since December 2016, this includes Ground Launched Cruise Missile Babur 2/ 1(B), Submarine Launched Cruise Missile (SLCM) Babur 3 and Air Launched Cruise Missile Ra'ad -II. All three of these missiles are currently under development while some analysts predict that Ra'ad (Hatf 8) missile might enter the service shortly[4].

Some reports also suggest that Ra'ad-II missile system might have undergone significant design changes to make it fit in diverse range of combat aircrafts, which includes China supplied JF-17 fighter aircraft, besides developing already existing fighter aircraft Mirage III by adding aerial refuelling capability which could potentially enhance the range of a strike mission[5]. In this context it is important to note that till date Ra'ad missile tests have been conducted from Mirage III fighter bomber. In 2017 the Pakistan Aeronautical Complex, which manufactures JF-17 combat aircraft, mentioned about integration of standoff weapon with JF-17. This makes the possibility of using JF-17 fighter for Ra'ad missile launch even more stronger in future.

In view of Pakistan's advances in cruise missile development programme in recent time, it is likely that missile systems like Ra'ad and Ra'ad II will undergo extensive development besides advancement of their advanced guidance and control systems and the launch platforms.

(Disclaimer: The views and opinions expressed in this article are those of the author and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])

Notes

[1] Bilal Khan, "Pakistan Officially Unveils Extended Range Ra'ad 2 Air-Launched Cruise Missile." Quwa Defence News & Analysis Group. 23 March 2017 at https://quwa.org/2017/03/23/pakistan-officially-unveils-extended-rangeraad-2-air-launched-cruise-missile/ accessed on 19 February 2020

[2] Franz-Stefan Gady, "Pakistan Test Launches Ra'ad II Nuclear-Capable Air-Launched Cruise Missile", *The Diplomat,* 19 February 2020 at https://thediplomat.com/2020/02/pakistan-test-launches-raad-ii-nuclear-capable-air-launched-cruise-missile/. Accessed on 19 February 2020.

[3] ISPR report No PR-135/2012-ISPR, May 31, 2012, https://www.ispr.gov.pk/press-release-detail.php?id=2080 accessed on 25 January 2020

[4] Hans M. Kristensen, Robert S. Norris & Julia Diamond (2018) Pakistani nuclear forces, 2018, Bulletin of the Atomic Scientists, 74:5, 348-358 accessed on 07 January 2020

[5] ibid