

DUAL-USE MISSILE

French Rafale crews discover AASM's potential for ground kills

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The French air force will acquire a new capability this year to counter enemy air defenses, employing tactics pioneered during the multinational Tactical Leadership Program exercise held in January and February.

Aircrews flying the new Dassault Aviation Rafale multirole aircraft have realized a new weapon the service is fielding will give them the ability to destroy ground-based air defenses with a precision the French air force has been lacking. The tactics involve the latest Rafale B Standard F2 two-seat strike aircraft armed with Sagem Defense Securite-built AASM (*armement air-sol modulaire*) all-weather inertial navigation system/global positioning system (INS/GPS)-guided standoff precision weapons.

Rafale Bs from Fighter Squadron 1/7 out of St. Dizier air base joined the latest edition of the eight-nation Tactical Leadership Program flying course at Florennes air base. In what was the first Rafale operational deployment outside France by a regular air force unit, they participated as part of the "Blue Forces" in a combined air defense and air-to-ground role. "One of the main objectives for us was to improve our capability to use AASM in complex missions," says detachment commander Capt. Nicolas Lyautey.

AASM is a Mk 82 500-lb. bomb with a GPS-based guidance kit and a propulsion kit, providing both precision and standoff range. The standoff range is understood to be around 75 km. (46.6 naut. mi.), although official Sagem data puts it merely at "exceeding 50 km., depending on the firing altitude." Lyautey says that "with up to six AASMs carried, each aircraft can engage six different ground targets simultaneously, as long as the target set is not too widely spread out."

The participating aviators figured out that the Rafales with their AASM load-out could compensate for the absence of dedicated suppression of enemy air defense assets. Flying at high speed and high altitude, the Rafales could engage the ground threat of simulated SA-2 and SA-3 surface-to-air missile sites from outside the missile engagement zone.

"We took on the destruction of enemy air defenses role, which went particularly well during one lengthy mission against a target set in the U.K. To be honest, we are just now discovering this capability. AASM is a new weapon and tactics development is still going on. A precondition is that the threat picture and coordinates of missile and radar sites are known to us," says Lyautey.

According to British and Netherlands weapons instructors at the course, the Rafale's ability to strike six designated mean points of impact simultaneously from a standoff range makes it a "real force multiplier."

In addition to the six AASMs (or two MBDA Scalp-EG cruise missiles), the Standard F2 aircraft would carry four MBDA Mica air-to-air missiles (two radar- and two infrared-guided). "One of the best characteristics of this jet is that it provides us with a good



Rafale B's OSF electro-optical sensor suite, mounted above the nose (left), was introduced in 2006 as part of Standard F2.



situational awareness. That offers good survivability when going deep into hostile territory," says weapons systems operator Capt. Nicolas Szybowicz. "If we are threatened, we will know about it in time to decide whether to evade or to defend ourselves. Furthermore, setting up the firing plan to engage multiple targets with multiple AASMs is not complicated at all."

Future versions of the AASM will further enhance the Rafale's strike capability, as these will add an infrared imaging seeker (near term) and a laser-guided capability (medium term) to the weapon's guidance options. Today's AASM is not regarded as suitable for close air support, as it can only be used against stationary targets with precisely known GPS coordinates, officers at Florennes say.

French air force officers say the St. Dizier Rafale Bs recently deployed to Afghanistan are operating with load-outs of six GBU-12 500-lb. Paveway II laser-guided bombs, but "definitely without a targeting pod." The Thales-supplied Damocles pod that the air force Rafales are to receive will only be integrated by 2008 with the Standard F3 version of the aircraft. Standard F3 will also add a reconnaissance pod, nuclear strike missile and anti-ship missile capability.

Over Afghanistan, the Rafales are paired with French air force Dassault Mirage 2000Ds. Those carry a laser targeting pod plus two GBU-12s. In a combat situation, the Mirage will laser targets and the Rafale will deliver its weapons into the "basket" so that they can acquire and home in on the laser spot. But it would be wrong to suggest that the Rafale is therefore "just a bomb truck," as it provides "significant extra capabilities that the Mirage 2000D doesn't have, such as a powerful air-to-air radar, air-to-air missiles and the ability to use the Link 16 tactical data link," the officers say.

In addition, the Rafale crews are able to visually examine and verify ground targets using their Thales- and Sagem-supplied OSF (*optronique secteur frontal*) electro-optical sensor suite mounted on top of the aircraft's nose.

The OSF features a dual-band infrared camera turret for long-range (100-km.) air-to-air target detection and a medium-range (40-km.) electro-optical sensor for air-to-air target identification and laser rangefinding. For air-to-surface targets, the useful ranges are understood to be shorter, while there is also a field-of-view restriction in that the sensor set is mounted on top of rather than underneath the aircraft. ■

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