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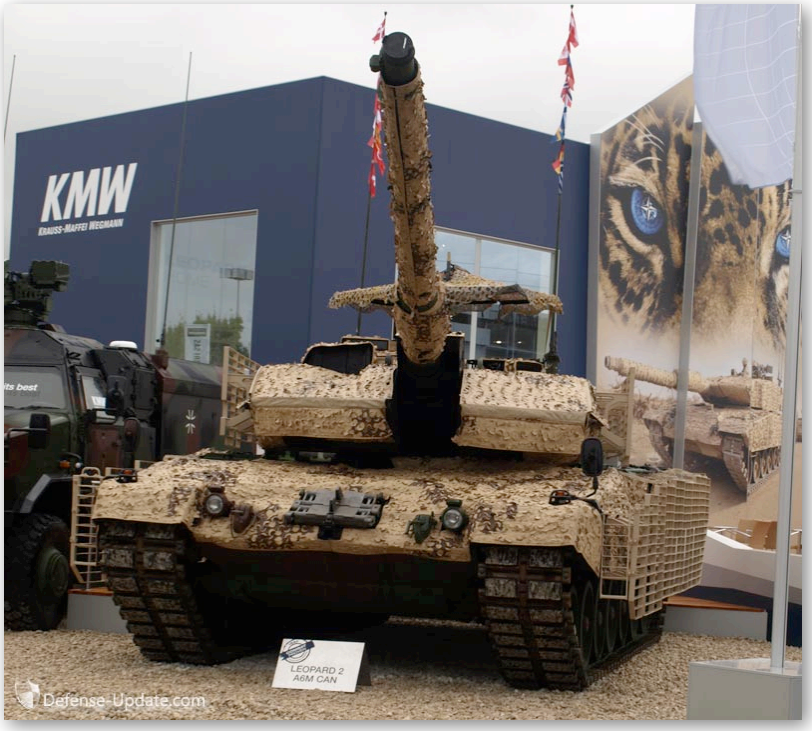
Defense Update

EUROSATORY 2012 SHOW LIVE

EUROSATORY SHOW LIVE - DAY 3

Defense Update reviews the main themes at the upcoming Eurosatory 2012, the world's largest land warfare expo in Paris

Eurosatory 2012 – the world's largest defense expo will take place in Paris at the Parc d'Expositions north of Paris, 11-15 June 2012. This year the event hosts over 1,100 exhibitors indoors and outdoors. Many exhibitors are participating in the dynamic live demonstrations while others are grouped in technology clusters, appending to visitors focused attention.



Eurosatory 2012 Dynamic Demonstration

The Eurosatory 2012 dynamic demonstration is highlighting situations depicting 'real life' scenarios, from asymmetric combat, to law enforcement, crowd dispersal to dealing with hazardous materials and chemical or biological threats. The systems on display include armored vehicles of various types, including the French Renault Trucks Defence VAB 4x4 and American M-ATV armored ambulance from Oshkosh defense. Two types of unmanned vehicles were demonstrated in flight - the IT180 mini-drone from Infotron and HoverEye EX developed by Bertin. (p.23)

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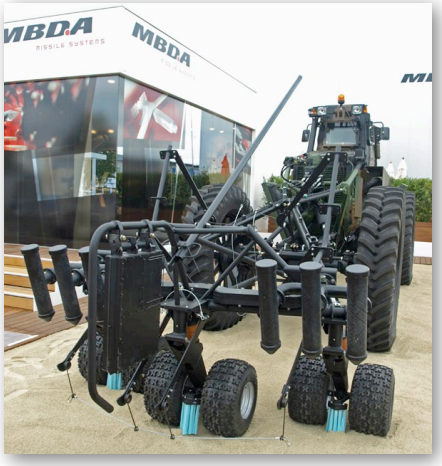
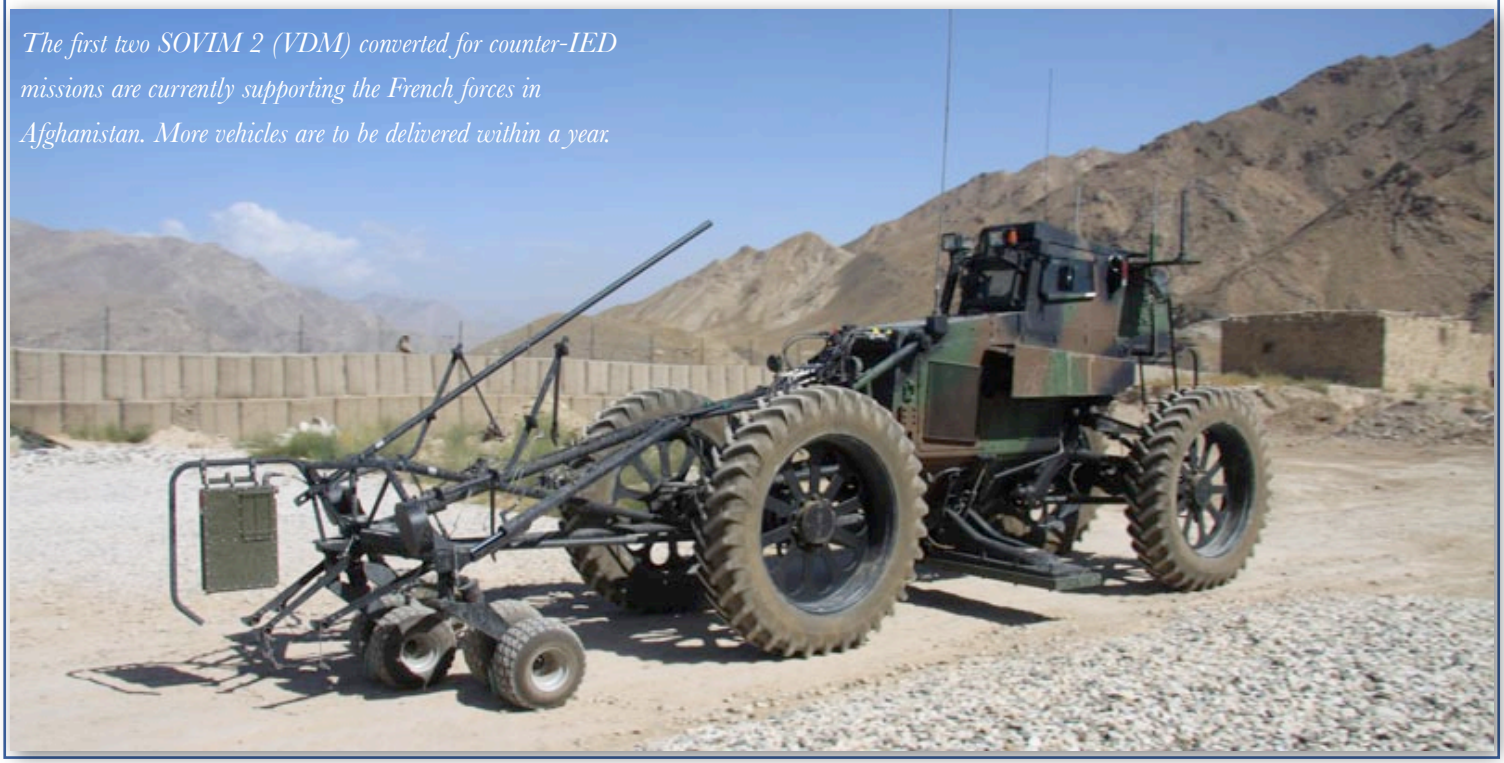
France Transforms Counter-Mine System for Counter-IED Missions

Following several years of development of a complex and ambitious route-clearing counter-mine system, the French Army has halted the original program, transforming the available assets to better cope with Improvised Explosive Devices (IEDs) in Afghanistan. Since their deployment to Afghanistan six months ago the unit operating SOUVIM 2 encountered 18 IEDs at a rate of 1-2 per week. About one third of the detections were attributed to SOUVIM. The diversion of the program began in response for an urgent operational response which described the requirement for a system that will be able to detect and defeat IEDs along movement routes, in support of the French contingent in Afghanistan. The original SOUVIM was not tailored for this task, as it was oriented to detect and disrupt various mines – anti-personal or anti-tank magnetic or pressure mines laid along roads in typical 'cold war' style. In contrast, insurgents use improvised devices, non-standard materials, which do not necessarily



leave a clear signature that can be addressed by specific countermeasures.

"The first step in the evolution of SOUVIM 2 was to adapt the most suitable detectors and countermeasure set." Lt. Colonel Philippe Boyer-Vidal, French Army project manager for C-IED programs told Defense Update. "These now include new sensors and multi-function decoys, including new pressure rollers, multiple infrared decoys designed to deceive simple passive infrared triggering and RF jammers disrupting command signals reception." In total the French Procurement Agency (DGA) ordered four systems, comprising two vehicles each (VDM + VDR). The first two out of three vehicles arrived in Afghanistan in 2009 and immediately joined rout clearing platoons. A third vehicle is maintained for training in France. The remaining vehicles are expected in theater within 12 months. These were based on the South African Husky, modified for the French mission with additional armor, roll-over escape hatch, air conditioning, communications and a new



The first two SOVIM 2 (VDM) converted for counter-IED missions are currently supporting the French forces in Afghanistan. More vehicles are to be delivered within a year.

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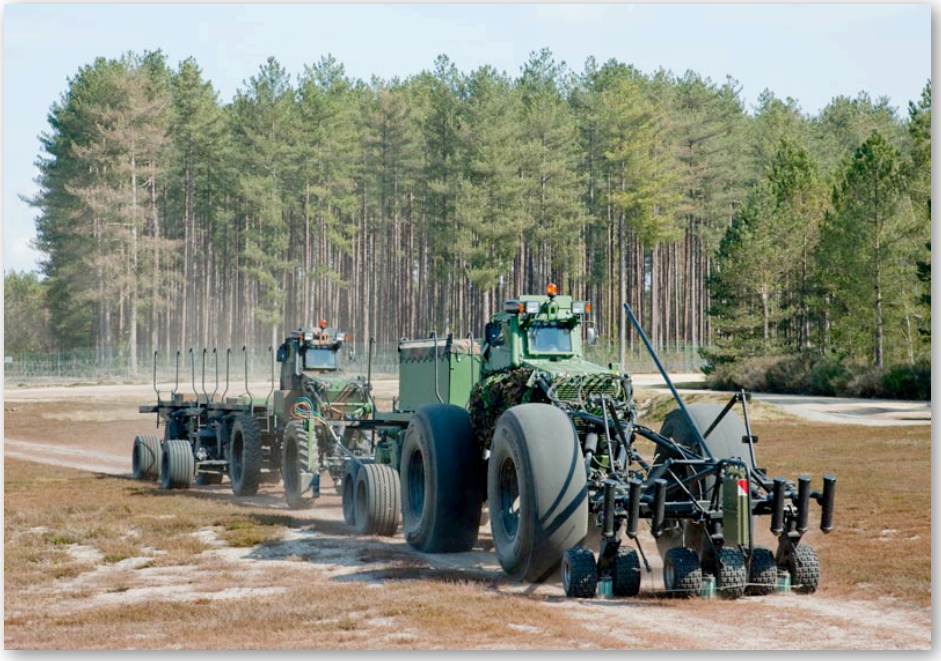
set of heavy duty wheels adapted from standard tractor supplies. The SOUVIM 2 weighs about 5.9 tons, and can travel at speeds of 15-25 km/h on route clearing mission. Enhanced protection armor kits are also being delivered, including counter-RPG defense and multi-spectral camouflage, thus reducing the vehicle's visible and IR signature. Other improvements being considered are the introduction of ground penetration radar (several types are being considered), as well as remotely operated weapon on top. Originally, the VDM was designed to be immune to pressure mines, thanks to the unique low pressure 'balloon' tires pressurized at only 0.3 Bar. However, these unique tires were found unsuitable for the Afghan mountain environment and, for the current mission, were replaced by heavy duty commercial off the shelf tractor tires. "Eventually, all eight VDMs will be configured for the C-IED mission, but will be convertible for the original SOUVIM mission, if the requirement surfaces, as the vehicle will be operated as part of the regimental route clearing company, along with the Aravis security vehicle and Buffalo route clearing vehicle. This proven capability will also become part of the French contribution to the European Defense Agency initiative on countering IEDs." Boyer-Vidal added.

Eurosatory Location

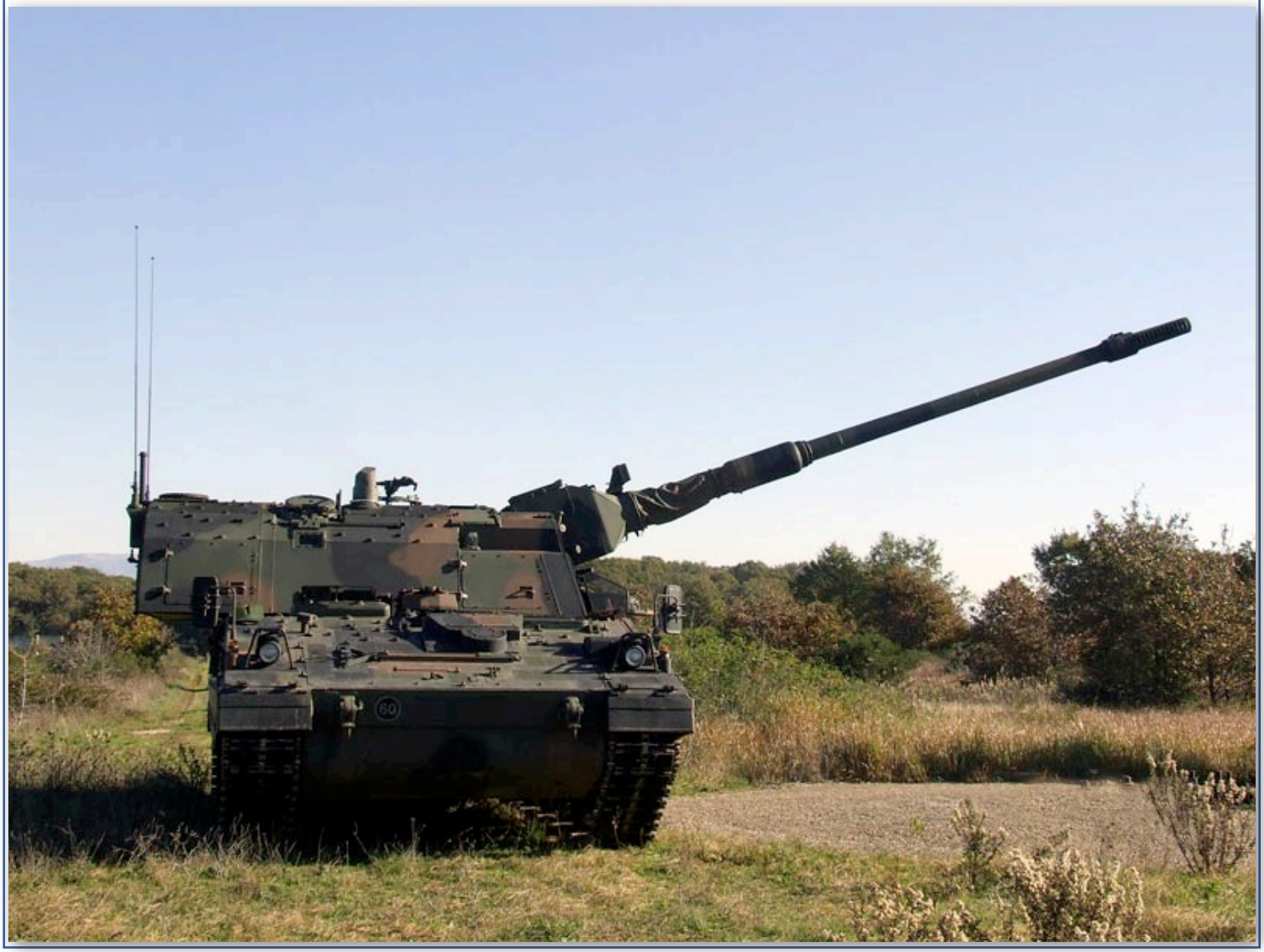
MBDA: EXT Pe6a D 550



Defense Update

Oto Melara, Diehl Defence to Share Production of Vulcano Precision Artillery Projectiles

Oto Melara and Diehl Defense signed today a cooperation agreement during the Eurosatory 2012 exhibition, formalizing the framework for a strategic alliance for the joint development and production of extended range large-caliber artillery projectiles and guided ammunition for the use of naval and land forces. The agreement covers the 127mm and 155mm projectiles known as 'Guided Long Range' and 'Ballistic Extended Range' Vulcano family of artillery ammunition, and the German 120mm Guided Mortar Munition. The cooperation will be offering the Vulcano 155mm GPS/SAL (Semi-Active Laser) long range precision guided ammunition for the self-propelled armored howitzer, in the German and Italian versions, as well as other NATO and non-NATO 155mm gun operators. Under the cooperation, the two companies will also provide the Vulcano 127mm (GPS/SAL) for the Oto Melara 127/64 lightweight naval guns, (to be operated on the German Navy Type 125 frigates). The projectile will also fit other fielded Oto Melara 127mm naval guns, offering naval platforms a theoretical engagement range of 100 km, using the gun only. Oto Melara has recently conducted the first successful series of eight firing tests of the Vulcano 155 GLR/SLA fired from a PzH2000, at Meppen in Germany. The companies are expecting to enter Low Rate



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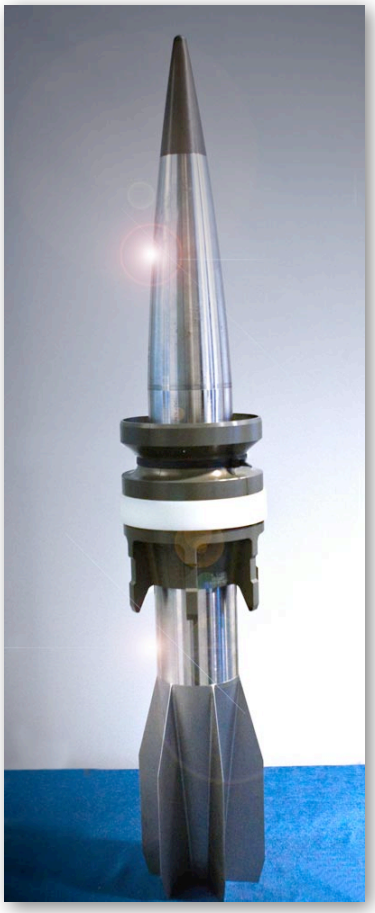
Initial Production of the Extended Range Ammunition in 2013, to be followed a year after with the GLR/SAL guided projectile. According to Dr. Carlo Alberto Lardella, CEO of Oto Melara, the two companies has lots in common and are set to join forces in cooperative development and production of ammunition for the Italian and German customers. He said Oto Melara has followed this opportunity after evaluating the Semi Active Laser (SAL) seeker for its 127mm guided projectile. Claus Guenther, CEO of Diehl Defense acknowledged that although the discussions about the cooperation have been underway for only few months, his company has good experience with the Italians in other programs, such as the IRST missile, "each side is bringing complimentary capabilities to the cooperation, but the result is no less than revolutionary, as it brings naval artillery and naval gunnery to performance they had never before experienced" Guenther said,



adding this industrial alliance should be a model of how industrial partnerships should follow, by making a small but meaningful steps forward, rather than giant shifts that draw a lot of rejection from the regulatory and executive levels. Beyond the cooperation on the guided projectiles the two companies have agreed to expand cooperation on conventional ammunition as well.

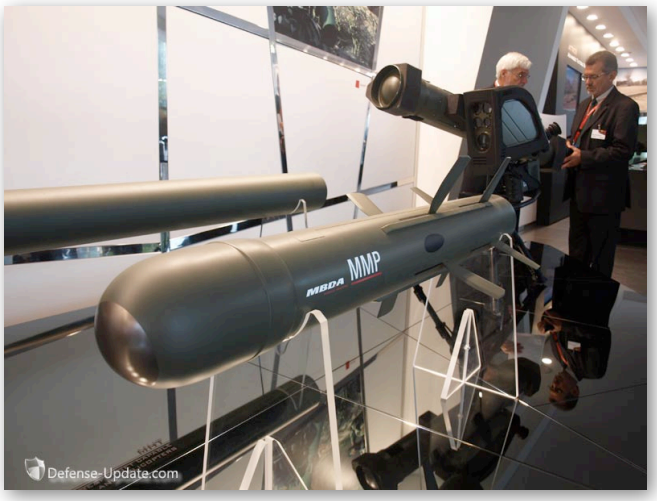
Eurosatory Location

Oto Melara: EXT Pe6a D 491
Diehl: HALL 6 G 640

Defense Update

MBDA Reports progress with MMP Missile

MBDA reported today some progress on the Medium Range Missile (MMP) weapon system, destined to replace the MILAN medium range missile that has been in the French Army service since 1974. In December 2011 the French MOD awarded MBDA a 12 months risk reduction program contract for the Medium Range Missile (MMP) Program. Following the completion of testing certain technologies, such as the launch section, optical-fiber release and missile aerodynamic configuration, MBDA is expecting to receive a contract award for full scale development, leading to first firing trials in 2014, and production of 3,000 missiles and 500 firing posts, gradually replacing the MILANs in the French Army infantry units as the new missile becomes operational in 2017.



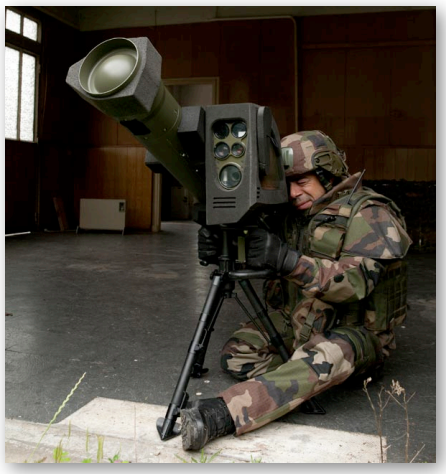
Although MILAN has been a great success on the export market, the MMP is currently aimed at the French market exclusively. Under the current economical pressure, MBDA is not seeking cooperation outside France thus rising delaying the development and procurement of the new missile which was sofar developed mostly with internal funding. Nevertheless, MBDA consider the MMP as a key future program, allowing French and European industry to maintain the MILAN market share in foreign markets.

The MMP is designed for safe launch from enclosed spaces, therefore improving the warfighter's capability to employ the missile in urban warfare, providing a minimally safe firing range of 150 meters; something the MILAN lacks. Other requirements stated by the military include a 'Fire and Forget' functionality, thus greatly improving the survivability of the missile team. Nevertheless, MBDA is also introducing 'man in the loop' capability, therefore offering the user full control of the missile while in flight. The range of the MMP will be 4,000 meters, almost twice the MILAN range (The MMP requirement is to destroying fix or moving land targets at distances of up to 2500 meters). MMP will not be a lightweight weapon though. The firing post kit will weigh about 12 kg and each missile will weigh about 15 kg.

The new missile is designed as an affordable weapon system. About 50 per cent of the content of the missile are common with the longer range version, known as MHT. Key systems as the two warheads, dual-mode seeker, MEMS IMU backed autopilot, and overall diameter will be maintained in both weapons. The length, propulsion system, datalink (the MHT is expected not to use a fiber link). The 1,700 mm long MHT will be twice as heavy as the MMP. It will be designed to engage the same targets as the MMP but at more than double the ranges - 8-10 km, providing full Non Line Of Sight capability, using Lock On After launch (LOAL) and trajectory shaping.

MBDA, as a prime contractor has grouped an industry team to provide the various subsystems and components of the new missile. The booster and main rocket motor is developed by Roxel, Sagem is developing the TV/uncooled IR seeker, SBDS is responsible for the dual-HEAT warhead, Jyunghans T2M providing the safe-arm system and while MEXANS is providing the fiber-optical release system. Sagem is also providing the seeker and image display used on the control system.

MBDA promises the MMP will give close combat units and special forces a versatile and precise attack capability. Needing to face a great variety of threats, these units need to be capable of acting alone, on foot and without any immediate support.



MPP is being developed with the capability to launch the missile from confined space.

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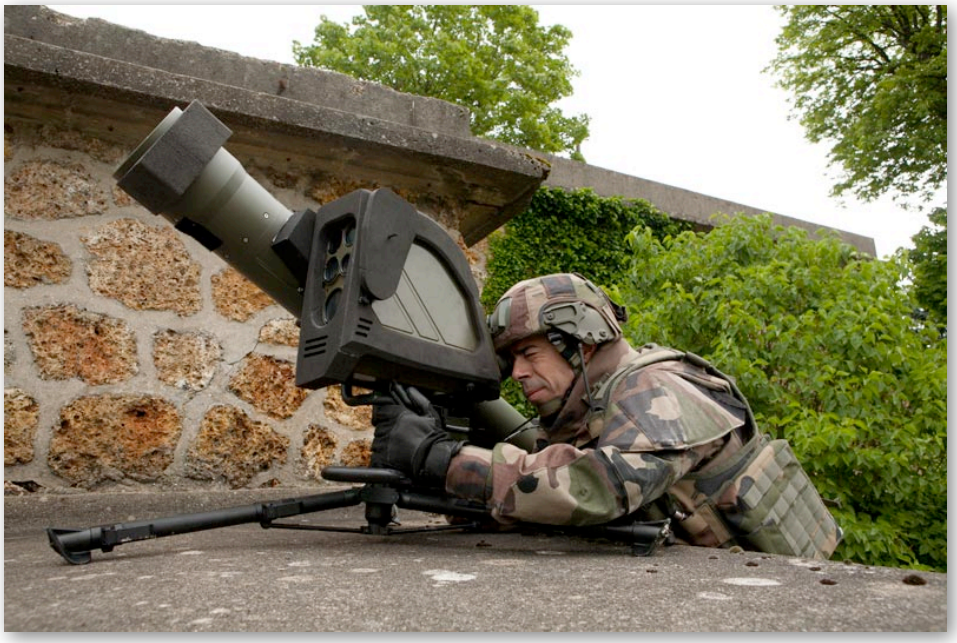
They will also need to operate in complex environments (day-night actions; mingling with the population or with friendly forces; asymmetric combat; plurality of players involved, etc.) in widely varying areas (urban, desert, mountain zones; etc.)., The target set includes latest-generation main battle tanks of the T-90 class and light vehicles. It is also required to

be able to neutralize disembarked personnel or personnel under cover in permanent or temporary defensive shelters

Since France already uses the Spike LR missile that offers much of these capabilities, MBDA is designing the future MMP to offer more advantages and better integrate within the future force structure. For example, MBDA claims the use of an uncooled seeker has a potential to increase reliability and reduce cost. Close integration with FELIN, the French Army modern infantry system, and the battle management systems, can improve the warfighter's load and offer unique integration capabilities.

Eurosatory Location

MBDA: EXT Pe6a D 550



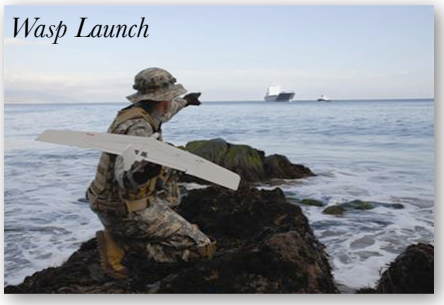
The MMP fire control unit will clip on the missile canister to create the launcher unit. The fire control system will weigh 12 kg, with each MMP missile adding 15kg.

Defense Update

Sweden, Denmark Opt for PUMA AE, Wasp

Sweden and Denmark both selected the PUMA AE for Tactical Unmanned Aerial System (TAC-UAS) to support their deployed forces in Afghanistan. The two defense ministries awarded the U.S. company AeroVironment (AV) two firm fixed-price orders, Denmark awarded $9.6 million through the Danish Acquisition and Logistics Organization. The value of the Swedish contract has not been released but the scope of work could be around 40 systems. Both procurement plans were followed competitive evaluation conducted by the two countries.

"Allied armed forces are procuring our small unmanned aircraft systems to give small tactical teams the ability to operate more effectively and safely, without requiring support from more expensive, scarcer resources," Roy Minson, senior vice president and general manager of Unmanned Aircraft Systems at AeroVironment told Defense-Update.



Wasp Launch

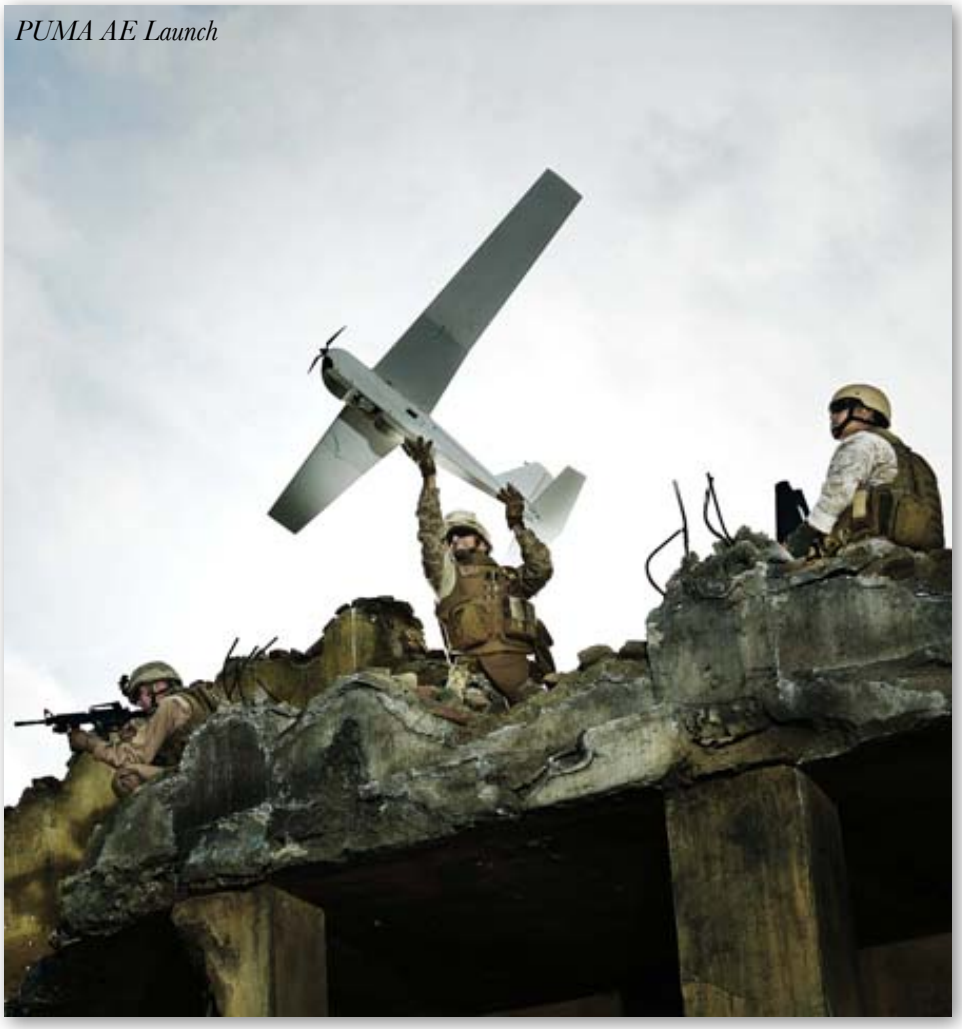
According to Minson, AeroVironment is increasing the share of export in its business, and 18 nations outside the United States have now purchased AeroVironment's Puma AE, Wasp or Raven B small UAS. Countries already using these drones include Australia, the Czech Republic, Denmark, Estonia, France, Italy, Lebanon, the Netherlands, Norway, Saudi Arabia, Singapore, Spain, Thailand, Uganda, and the United Kingdom.

Sweden has ordered 12 hybrid small unmanned aircraft systems (UAS) from AV. The order was issued by the Swedish Defence Materiel Administration (Försvarets Materielverk) on behalf of the Swedish Army. The order consists of Puma AE and Wasp air vehicles, ground stations, training, and logistics support. Contract options could increase the procurement to a total of 30 systems.

According to Minson, AV is expanding and updating its product lines with phased improvements based on capabilities derived from operational combat lessons and technological surveys, introducing state of the art technology to empower the soldier, while easing operation and support. Among these innovations were the introduction of the digital datalink and new Mantis family of gimbaled sensors, currently available for the Puma, Raven and Wasp.

Eurosatory Location

AeroVironment: HALL 6 L 527
EXT A690



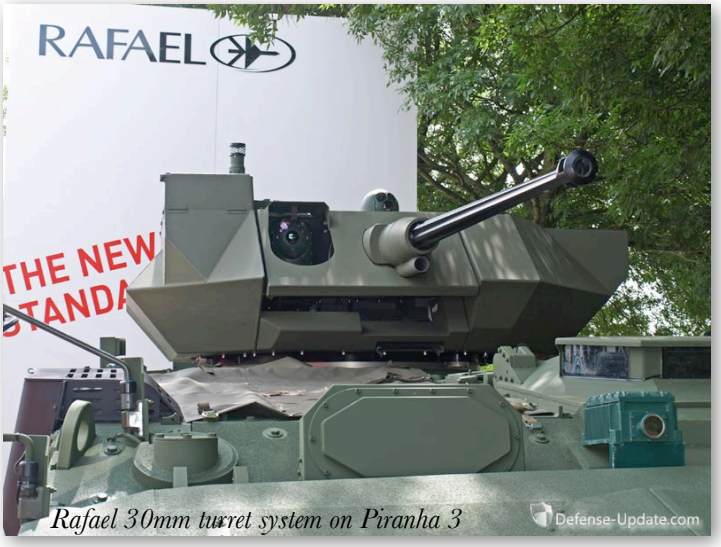
PUMA AE Launch

Defense Update

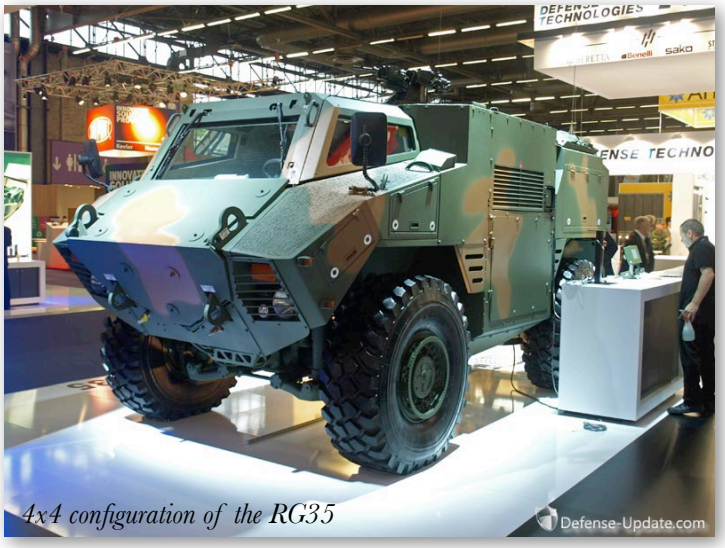
Eurosatory 2012 - Outdoor Exhibition

BMP-T

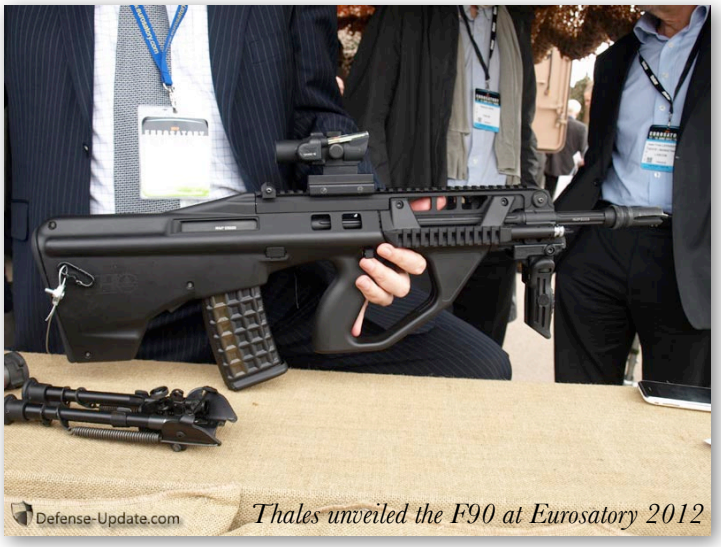
Leoprad 2 A6 CAN Counter RPG



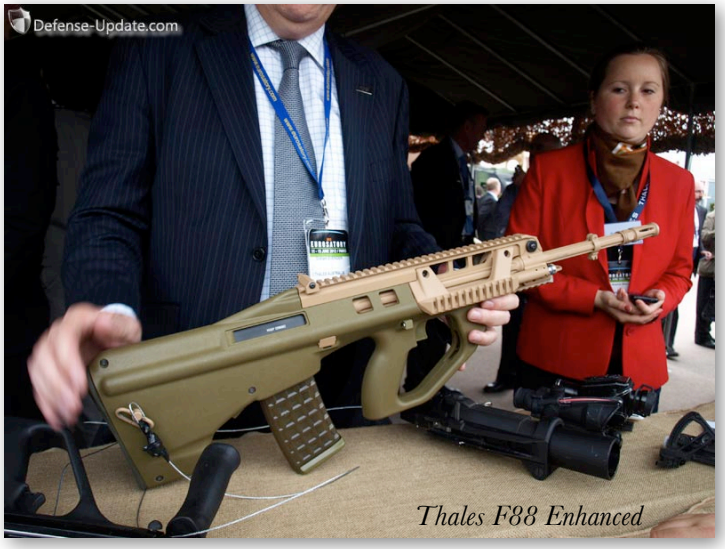
Rafael 30mm turret system on Piranha 3



4x4 configuration of the RG35



Thales unveiled the F90 at Eurosatory 2012

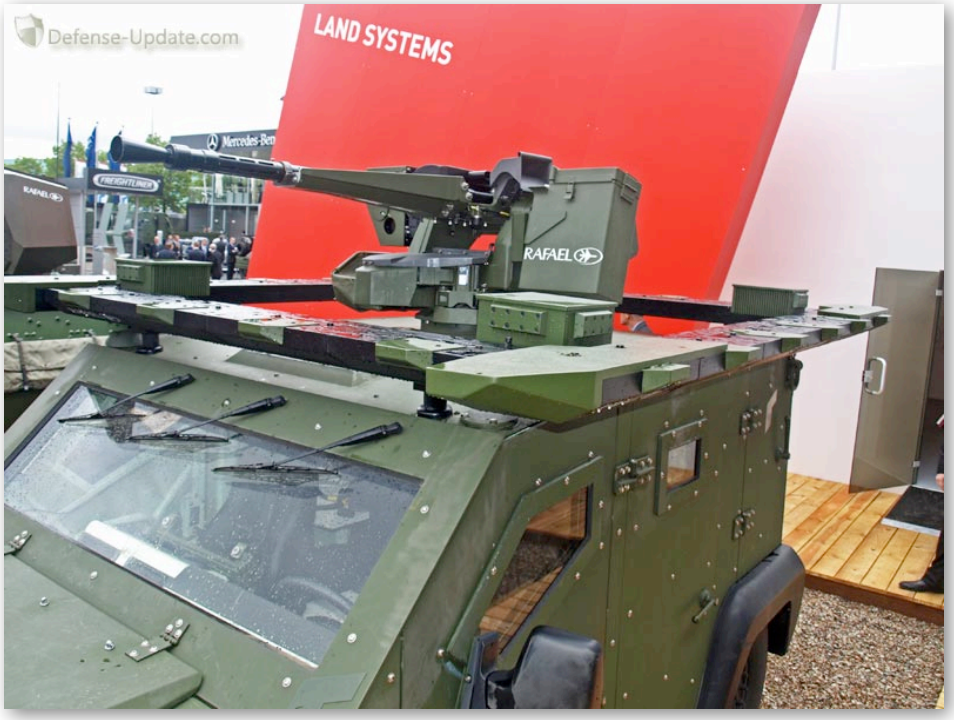


Thales F88 Enhanced

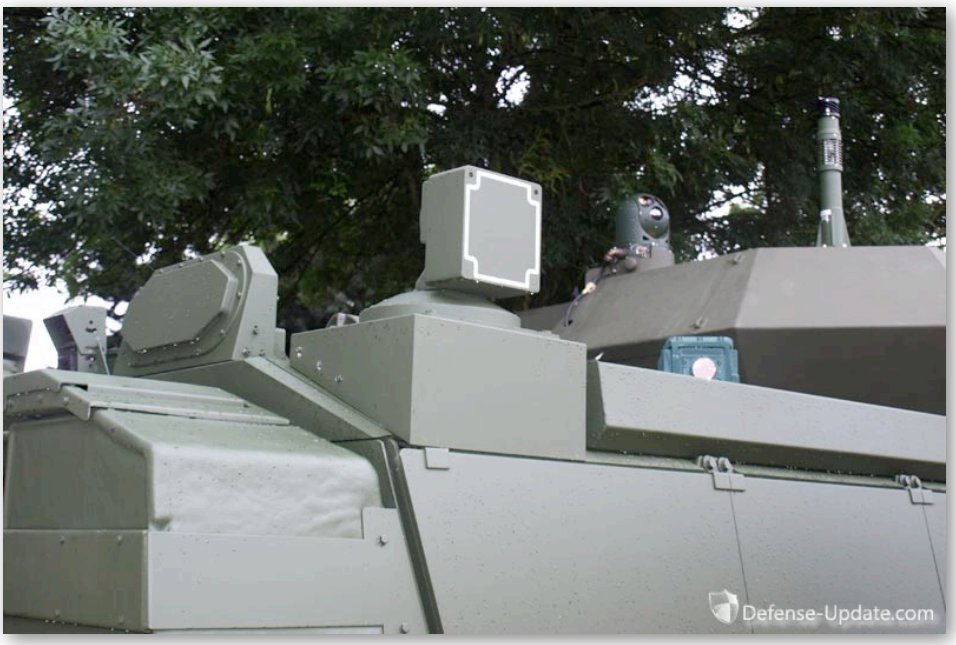
Defense Update

World Debut for the Trophy Light

Rafael's TROPHY LIGHT Active Protection System (APS) is making its world debut here at Eurosatory, demonstrated on a Rheinmetall Gavial light armored vehicle. The vehicle also carries a Mini Samson weapon station adapted for the 14.5mm KVPT machine gun. Trophy Light was developed to protect light armored vehicles, where the protected vehicle does not maintain substantial armor to contain the countermeasure's blast or secondary impact of RPG restudies that may remain after an intercept by other systems. To meet this challenge the system offers very high speed response, enabling effective protection at very close range. As other Trophy family systems, Trophy Light uses two sensors operating in unison – a network of four sensors covering 360 degrees and distributed electro-optical sensors that trigger the relevant countermeasure unit at a very close range. The system has passed intensive series of tests where it demonstrated high efficiency in defeating various types of standard and advanced RPGs.



The new 'Trophy Light' Active Protection system mounted on the Gavial vehicle, along with a Samson Junior weapon station carrying the KVPT 14.5mm machine gun.



The second generation Trophy system is designed for medium weight vehicles. It is seen here on a Piranha 3 vehicle which has also been installed with the new 30mm remotely operated turret.

RAFAEL is also presenting here a new version of 30mm turret mounted on a GDELS Piranha 3. RAFAEL has already delivered different types of turrets, currently installed on Pandur 2 AFVs and the current turret builds on the experience gained with the first installation.

The new remotely operated turret is fully armored, although it provides a hatch for the commander. Operating the gun, reloading ammunition or operating stoppages is performed from the inside, under armor. The new configuration enables much lower silhouette, since part of the ammunition can be stored inside and loaded when required. The turret is designed with continues curved surfaces, minimizing reflection and enabling safe movement for the crew when maintaining the vehicle. All the sensitive optronic systems are also under armor, whit the side-mounted add-on missile launchers also protected.

Eurosatory Location

Rafael: HALL 6 E 759
EXT Pe6b B 271

Defense Update

RAPIDFire – An Air Defense Application for the Cased Telescoped Cannon

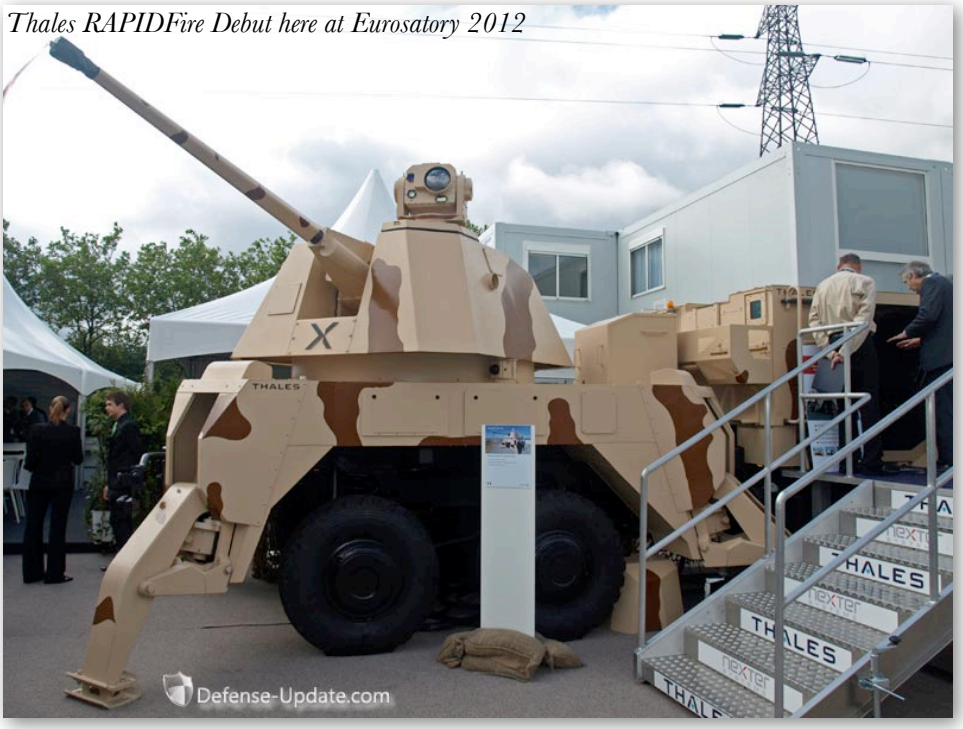
Air defense guns have been a controversial weapon in the past, as the guns could not cope effectively with fast, highly maneuvering targets. Yet, with the introduction of slow but illusive UAVs, military forces are wiping the dust from their old cannons, in hope they will be effective against this new threat. Merging trends including new types ammunition, cannons with higher firing accuracy and better command and control are turning these evolving trends into reality.

Thales is developing a new air defense cannon designed to counter small targets including fighter aircraft, helicopters, unmanned aerial vehicles (UAV), cruise missiles and aerial guided munitions. The self-propelled gun is part of a comprehensive family of products addressing five different pillars of the air defense domain. The new gun dubbed 'RAPIDFire' is developed by Thales, Nexter and the Anglo-French joint venture company CTA, providing the 40mm cannon and its unique cased telescoped ammunition. Nexter is developing a dedicated Anti-Aerial Air Burst (AA-AB) projectile designed specifically for the air-defense application, adding to existing armor piercing and high explosive rounds.

The new gun went through French Air Force testing in 2011, demonstrating good results. The new ammunition is currently in development, with follow-on testing scheduled for later in 2012.

The new projectile contains a load of tungsten pellets dispersed by a time fuse few seconds after firing (equivalent to range). The scattered pellets create a lethal cloud of steel likely to destroy the target as it flies into it.

Thales RAPIDFire Debut here at Eurosatory 2012



The unmanned turret mounts the gun, ammunition feed and electro-optical multi-sensor payload providing the target acquisition for RAPIDFire. This system can spot a fighter size aircraft at a distance of 30 km and a helicopter target at half that range.

The system receives target information and intercept assignments from an associated CONTROL Master 60 surveillance radar and CONTROLView command and control module, both provided by Thales. This C2 system controls up to six RAPIDFire units simultaneously. To enter firing mode the RAPIDFire vehicle stops and sets up communications link with the control, a task that generally takes about one minute. According to Thales, the gun can open fire within 4.5 seconds from the target detection by the radar.

The gun has an effective range of 4000 meters against aerial targets and 2,500 m against ground targets. While the gun can fire up to 200 rounds per minute, only one to ten rounds would be required to take out a target. Augmenting the gun, the turret can also carry up to six Starstreak air defense missiles.

Eurosatory Location

Thales Group: EXT P3 sud A 690
Nexter: EXT P3 sud A 600

Defense Update

Thales Australia Sends a Hawkei Prototype to Paris

Thales Australia is displaying at Eurosatory the latest version of the Hawkie, selected by the Australian defense for the LAND 121 Phase 4 program. Earlier this month the Australian MOD allocated over $38 million for further development and testing of the new vehicle. Thales is currently contracted to deliver six prototype vehicles for testing within 15 months. The first vehicle will be delivered later in 2012. Through 2013 these prototypes will undergo a range of testing and evaluation including user assessments, capability and reliability testing to evaluate the ability of the vehicle to deliver the capability required by the Australian troops. Following these tests the prime contractor will also have to meet technical and cost criteria. The Australian government will decide on the procurement of up to 1,300 such vehicles in the forthcoming second phase, expected in 2015.

According to Thales Australia CEO Chris Jenkins, the Hawkeye at seven ton weight will deliver a protection level equivalent to that of the much heavier Bushmaster, while deliver payloads of 1.8 tonns. At this weight level (Seven tons without applique armor) the Hawkei can be delivered by air with Chinook helicopter. The crew can then install the B-Kit add-on armor within 30 minutes, without the need for special tools, as each of the applique armor components is designed to be carried by one or two soldiers. Overall the vehicle is designed for a Gross vehicle weight of up to ten tons although some adaptations will be required to meet these weight levels.

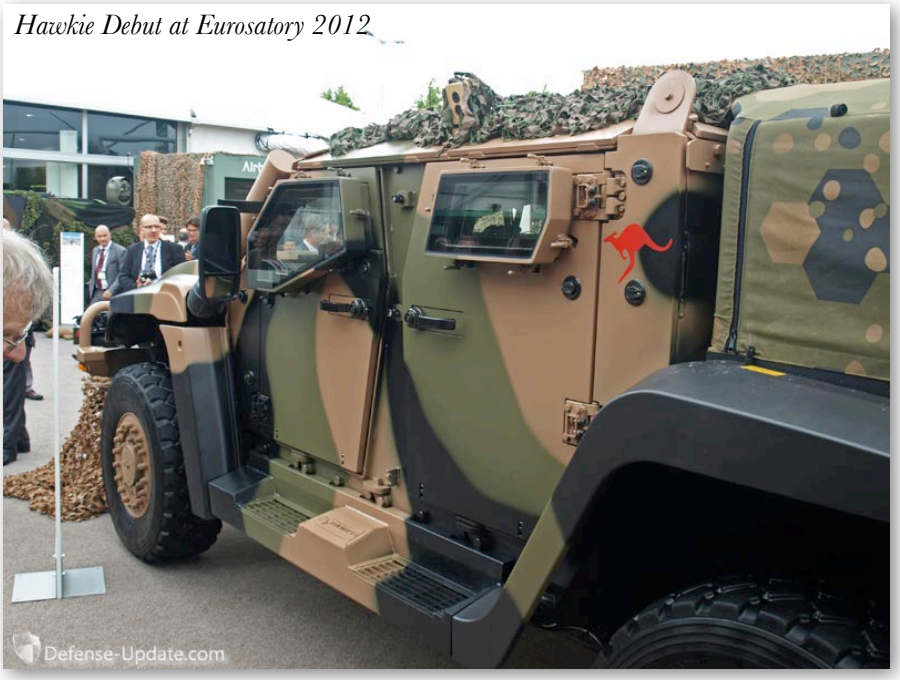
This straightforward and effective approach has been developed with Plasan, the protection system designer and integrator for Hawkei. Boeing Defence Australia is also part of the team, providing overall vehicle through life support.

According to Paul Harris, Director of strategy, sales and marketing at Thales Australia, unique dimension of the Hawkei protection architecture is its 'shallow V hull',

Paul Harris explains how the modular applique armor can be fitted by Hawkei crew members in 30 minutes, without any tools

enabling the vehicle to maintain a high level of mine and IED protection without increasing the height of the floor. He also mentioned the applique armor architecture enables the vehicle to adapt to evolving threats with new armor technology. According to Harris, modularity has been implemented throughout the design. For example, the bolted steel hull can be modified if necessary, to adapt for new configurations; the drive train is compartmentalized entirely from the firewall forward, eliminating the channel that usually contains the driveshaft and exhaust pipe. Inside, the cabin floor is flat, there is no driveshaft protruding the floor, leaving ample cabin space to seat three fully equipped soldiers at the back and two at the front.

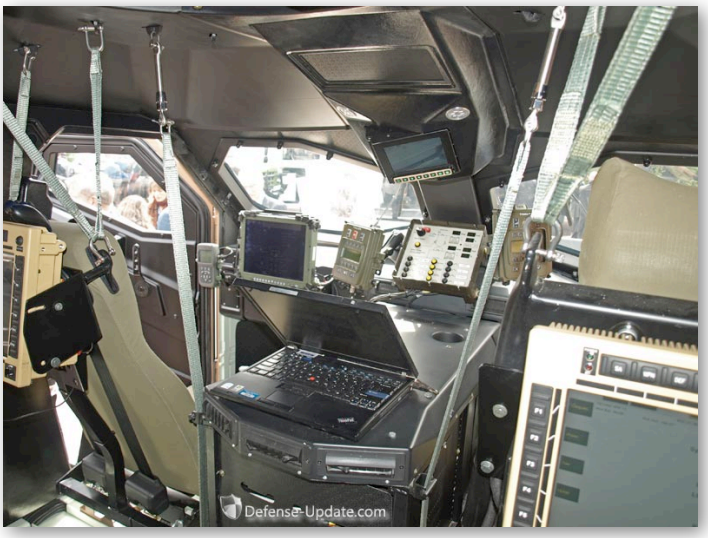
Hawkie Debut at Eurosatory 2012

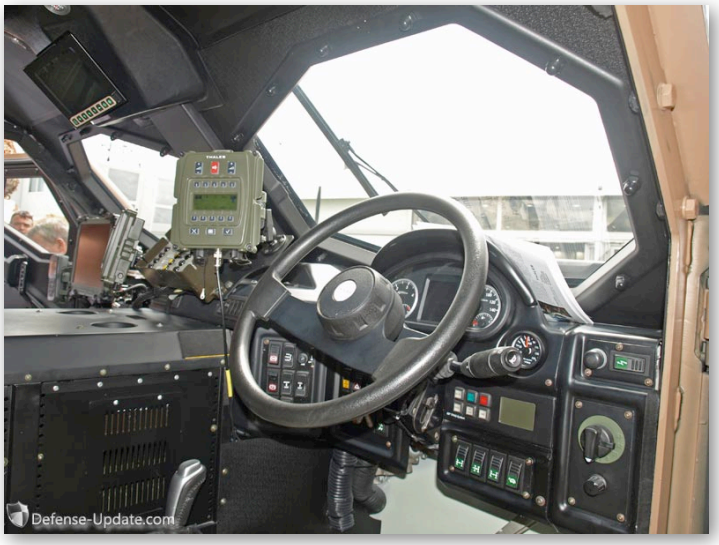


The crewmembers have individual multipurpose screens that link to all the vehicle's systems and sensors, including new ones that may come along in the future, including radios, command and control (BMS), weapon control and recon sensors. This architecture simplifies the integration of new systems on board. Thales plans to integrate a Health and Usage Monitoring Systems (HUMS) driven through the individual touch screens, displaying the vehicle's performance, engine, electrical supply, power management, weapons and sensors for the crew and maintenance operators.

Eurosatory Location

Thales Group: EXT P3 sud A 690



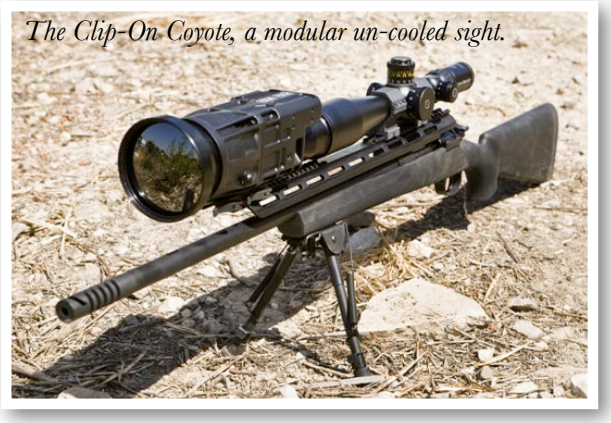


Defense Update

Elbit Systems Launches the 'Clip-On Coyote', a Modular Un-Cooled Sniper Sight

Elbit Systems is launching at Eurosatory 2012 the Clip-On Coyote, a modular un-cooled sight that easily integrates in front of any sniper's rifle telescope. Weighing less than 1.7 kg, the Clip-On Coyote enables shooting ranges on accurate calibers for snipers for more than 1,000m, high quality thermal imaging, detection range of 2.5 km and more than 8 hours of continuous operations.

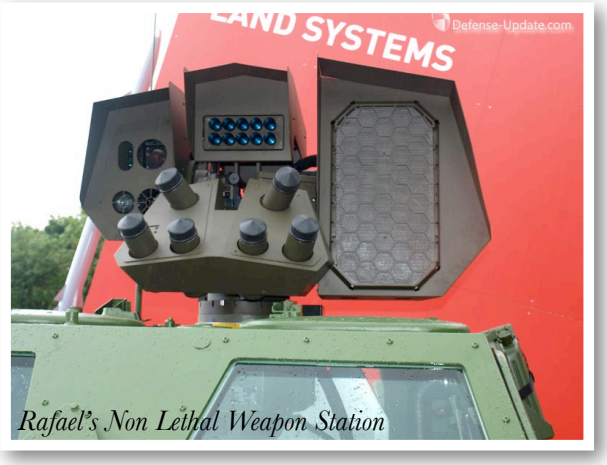
Specially designed for team operations, the system also offers a Video Net Kit for team efficiency. Comprised of video recording, transferring and receiving capabilities, the kit has also the ability to connect several snipers to the same net, enabling them to share and coordinate mission data. It also provides enhanced command and control and advanced monitoring and investigating capabilities.



The Clip-On Coyote, a modular un-cooled sight.

Remotely Operated Non Lethal Weapon Station

RAFAEL is unveiling at Eurosatory 2012 a new concept for remotely operated station mounting non-lethal weapons. The system, utilizing a standard Mini-Samson, mounting a modular assembly of systems carrying several devices aimed to provide the commander with non-lethal means for effective intervention. These include flash-bang payloads and loudspeakers, rubber balls and tear gas. The NLW kit can be loaded to any Mini-Samson weapon station, instead of the standard machine gun.



Rafael's Non Lethal Weapon Station

Rheinmetall Displays RPG-Protected Cabin for the HX2 High Mobility Truck

At Eurosatory 2012 Rheinmetall Defence is showing the HX2 'Extreme Mobility Truck System', fitted with a protected cabin and hard-kill protection system, providing good ballistic and mine / IED protection, a combination of statistical counter-RPG armor, and an effective active-protection system (ADS) against RPG attack. The cabin is also surrounded by a ballistic protecting net, adding statistical protection against IEDs. This unique close-in protection ADS system was successfully demonstrated in 2011 The HX2 is an advanced version of the HX family of trucks made by MAN Military Vehicles. This 6x6 cargo version is powered with a 440 Hp MAN diesel engine driving 16 tyres, providing high mobility off-road. The HX2 represents Rheinmetall's approach to the future core of a fleet of high mobility, protected transport vehicles that can be deployed worldwide.

To carry the excessive load of the protected cabin, the specially designed front axle loads up to 11 tons. Rheinmetall has designed the armored cab and qualified it for military use.

Rheinmetall-HX2 Cabin RPG protection

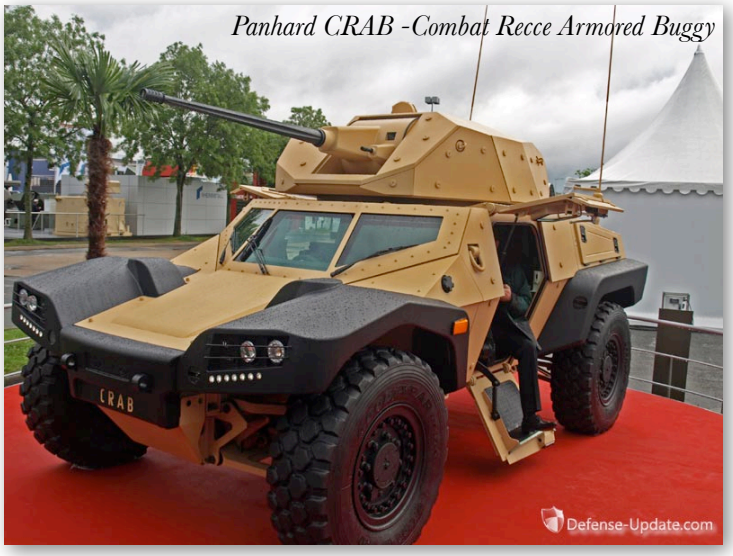
Defense Update

Panhard Innovate with the CRAB

Following a long tradition of supplying light armored vehicles for recce and patrol, Panhard is unveiling at Eurosatory 2012 the latest concept for such vehicle – the Combat Recce Armored Buggy (CRAB).

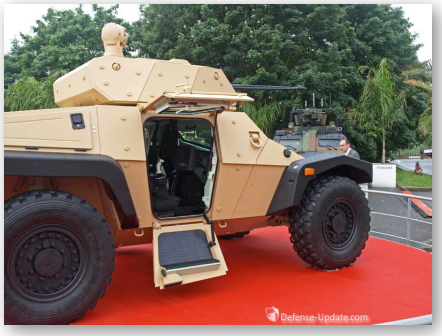
"The CRAB, a revolutionary concept without any equivalent in the market, will introduce a new kind of mobile warfare" Panhard promises. Major General Vincent Desportes, a special advisor to the chairman of Panhard explains: "The CRAB was designed with the view of providing the French Army with a force –sparing tool, enabling it to carry out a large number of missions with very low life cycle cost, before committing major combat assets, such as main Battle Tanks or other heavy armored fighting formations. Therefore, CRAB provides the mobility and firepower necessary for all phases of such missions. As a multipurpose platform, CRAB feature protection and mobility, equipped with the mission kit that can take part in the early stage of a conflict – containment, stabilization and normalization, while other configurations of the same vehicle will be employed in offensive, defensive or security missions. Panhard has based its CRAB design on the French Army WBAE 'commitment support' for tank squadrons, the WABE is currently at stage 2 of the Scorpion operation. Its purpose goes beyond recce missions, which are currently fulfilled by the scout squadrons operating VBLs. The commitment support role may be moe important and include employing future Non Line of Sight (NLOS) weapons that the EBRC will not have. The CRAB has been designed with this platform modularity concept" The company expects the world market for vehicles of this size and capabilities could be in the thousands.

CRAB includes several innovations such as the crew citadel and remote-controlled weapon system that enables designers to come up with a light (8-10 tons), compact yet highly protected platform. The vehicle is designed to accommodate up to three crew members, a driver, gunner and commander.



Panhard CRAB -Combat Recce Armored Buggy

The low profile (1.80 meters) contributes much to the vehicle's low visibility and stealthiness.



The drive line is designed to deliver high speed (up to 110 km/h) even off-road and in all-terrain conditions, maintaining agility in complex and built-up terrain. Moreover, the vehicle will have the capability to reverse at high speed, move crabwise and turn the rear wheels in the opposite direction, thus making a U turn within a 10 meter diameter. The large-diameter tires and large travel active suspension would be key to withstanding off-road mobility at high speed.

The protection level will consist of ballistic protection suite of STANAG 4569 Level 2, upgradable to level 4, and mine protection meeting STANAG 4569 Level 2/3. Thales is working with Panhard to develop the CRAB's electronic architecture comprising the Systronique vetronic network, on the basis of standardized crew stations, compatible with future Scorpion labels and standards. The remotely operated turret can mount various types of weapons, from 7.62mm machine guns to 30 mm automatic cannons, and surface or air defense missiles . At Eurosatory 2012 the CRAB is displayed with a turret mounting the 25mm cannon, designed by CMI. the compact and lightweight CRAB will be deployable by air, three such vehicles will be transportable in a Grizzly A-400M.

Eurosatory Location

Panhard: EXT Pe6a C 391

Defense Update

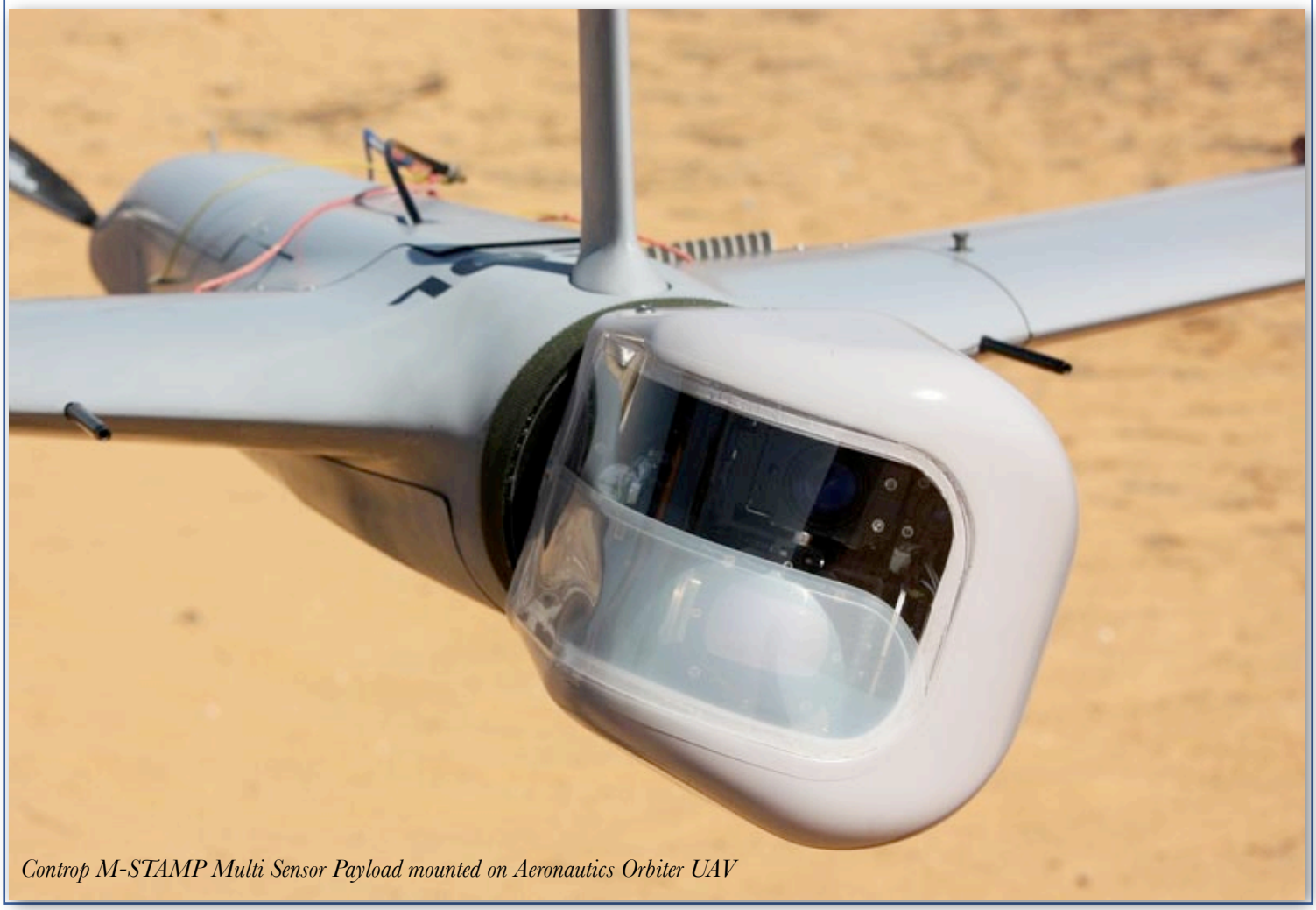
Controp Presents New EO Payloads for UAVs and Land Systems at Eurosatory 2012

Controp Precision Technologies has launched is introducing the M-STAMP gyro stabilized multi sensor payload system for small Unmanned Aerial Vehicles and small aircraft. The M-STAMP has a daylight (CCD) zoom camera and uncooled thermal imager dual field of view optics. In addition, the payload includes a laser pointer.Controp plans to offer an uncooled thermal imager with a continuous zoom as well. The new payload has also been delivered to customers in Europe and the US. One of the applications is the HoverEye EX unmanned helicopter developed by Bertin. In the US, the US Air Force has evaluated the new payload on an Elbit Systems Skylark LE.

Controp is also presenting the HD-STAMP - the first High Definition gyro stabilized camera for small UAVs. The new HD STAMP provides new opportunities for SUAVs, including surveying of power lines and other requirements where a high definition image is required.

In addition, CONTROP is bringing the new SPEED-V for the first time to be on demonstration at Eurosatory 2012. The SPEED-V is a lightweight (24kg) EO/IR gyro stabilized system which was specially designed for Mobile Surveillance Vehicle (MSV) while installed on a tall mast or on ground vehicles. The SPEED-V provides long range observation capabilities for intelligence gathering purposes, as well as panoramic scanning for Automatic Intruder Detection of very wide area perimeter For manned or unmanned ground vehicles.

Controp provides the VIEW range of stabilized rigid payloads. The family includes the L-VIEW, with a single sensor and the T-VIEW packing a dual sensor EO/IR on a gyro stabilized mount for day and night observation on board various ground vehicles and armored vehicles.



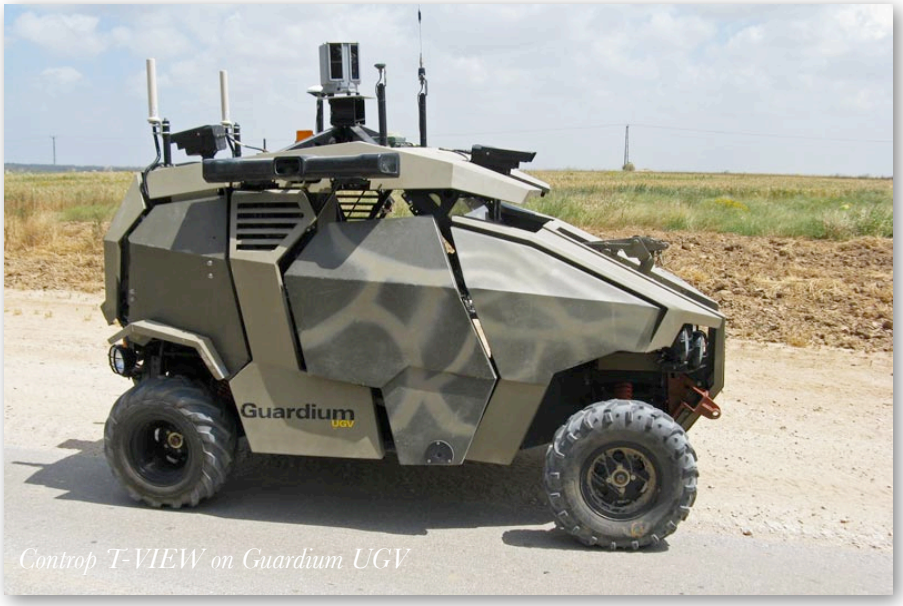
Controp M-STAMP Multi Sensor Payload mounted on Aeronautics Orbiter UAV

Defense Update

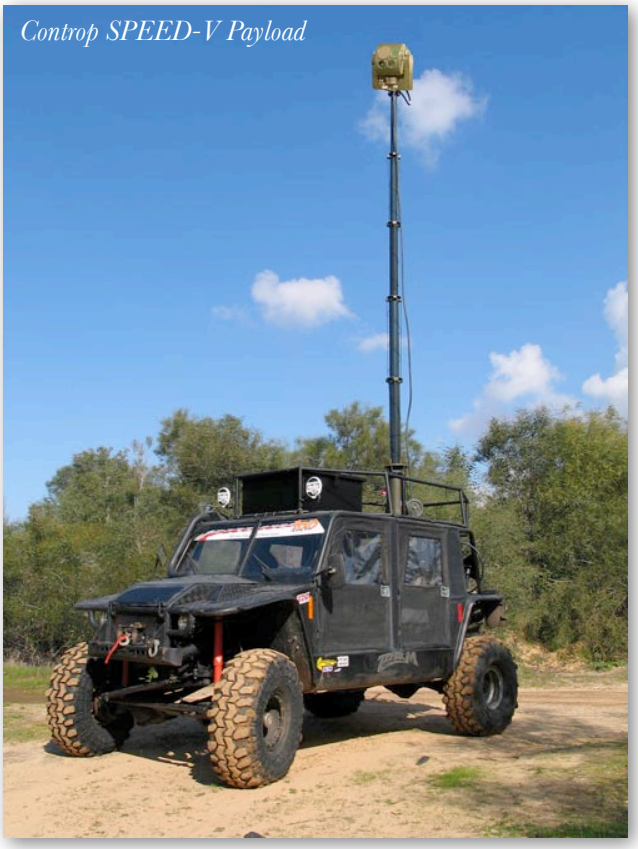
T-VIEW includes two cameras- an uncooled thermal camera with continuous zoom lens and a daytime CCD camera while L-VIEW comprises a single uncooled IR camera with continuous zoom lens. The L-VIEW has successfully completed an evaluation and field test for a foreign customer, mounted on armored combat vehicles. These payloads were designed to answer a unique field requirement as an aid to the commander and crew of light armored vehicles. The gyro stabilized VIEW payloads enable observation while driving through thick dust, dirt roads, so that the commander can have complete control of the surrounding area in panoramic view, which increases the mobile safety of the troops and provides security of access during movement. Other applications of the L-VIEW and T-VIEW include observation, navigation, driving, situational awareness and force protection while providing real-time video onboard a variety of different land vehicles.

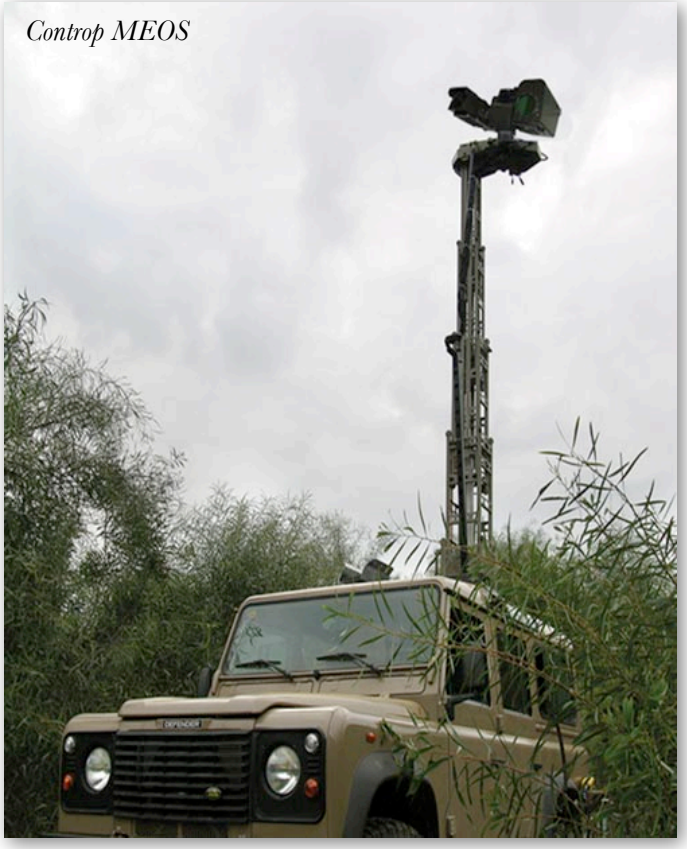
Eurosatory Location

Controp: HALL 6 B 571



Controp T-VIEW on Guardium UGV


Controp SPEED-V Payload


Controp MEOS

Defense Update

Rheinmetall Defence Displays Two Marder Upgrades

Main battle tanks and infantry fighting vehicles (IFVs) as well as wheeled armored combat vehicles continue to form the backbone of modern mechanized armed forces. Even in contemporary asymmetric conflicts, their mobility, excellent protection, firepower and C4I capabilities render them invaluable.


Upgraded Marder APC

Rheinmetall is offering upgrading and modernization of legacy vehicles such as the Marder, being phased out of German military service, the Marder is now offered overseas, retrofitted to meet the contingencies of modern military operations. Taking two extensively overhauled Marder IFVs as an example, Rheinmetall shows how new protection technologies, improved drives and innovative build-ons based on tried-and-tested platforms can result in new, cost-effective vehicles ranging from armoured personnel carriers to medium-weight main battle tanks. The original overhead turret of the Marder has been changed for the M151 Protector remotely controlled weapon.

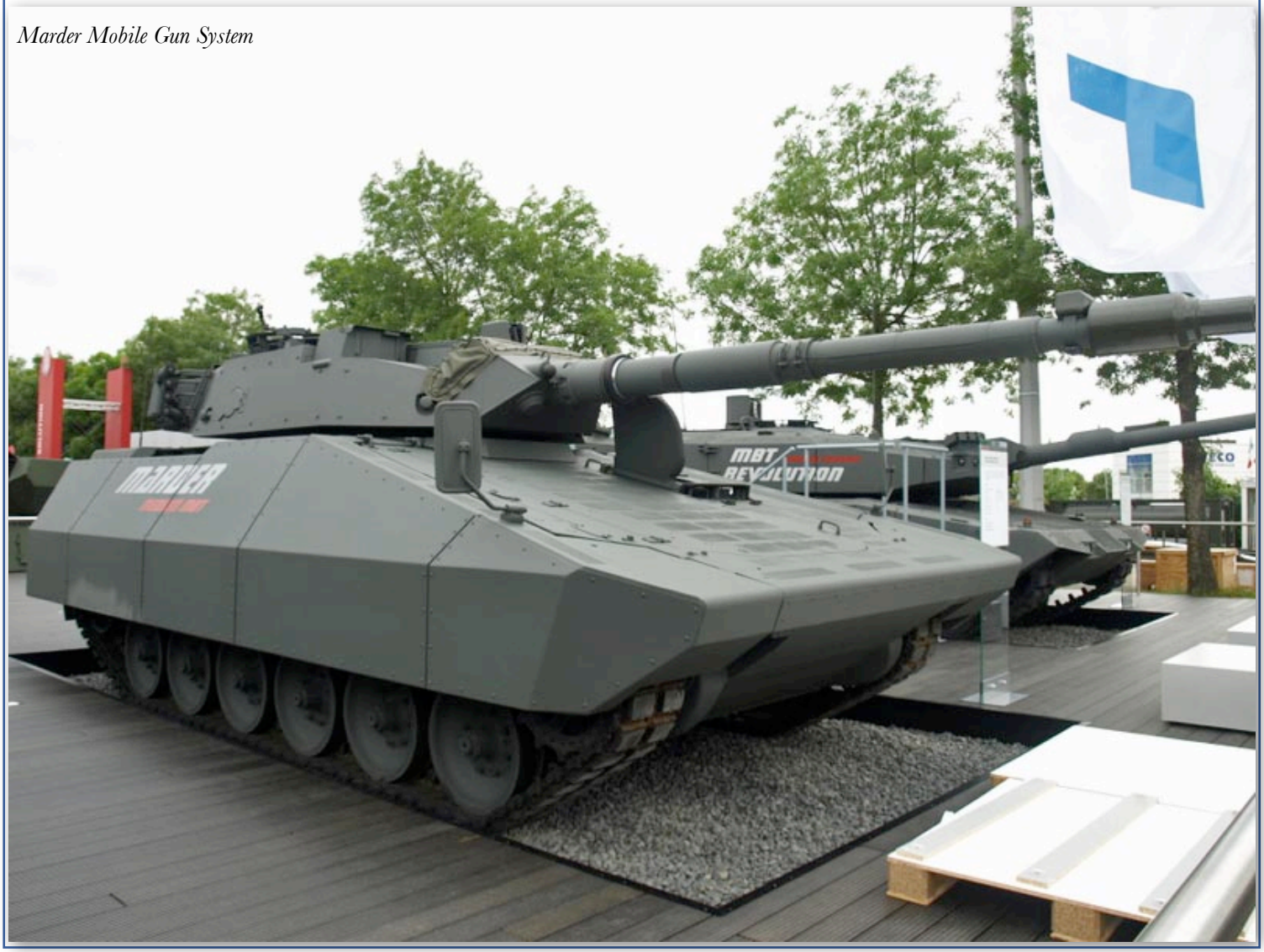
The upgraded Marder APC has a ballistic protection comparable to STANAGLevel 4+, and mine protection comparable to Level 3a/3b +, bringing the vehicle's weight to 33 tons. The top deck has been lifted, to enable improved ergonomics. The improved Marder uses a 600hp MTU MB883 diesel.

A different model of the overhauled and enhanced Marder was converted into a 43 ton mobile gun system, mounting a rifled, stabilized 105mm Oto-Melara gun in a new turret.

Eurosatory Location

Rheinmetall: EXT Pe6b D210

Marder Mobile Gun System

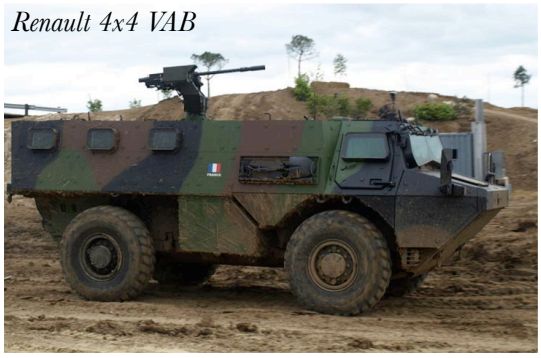


Defense Update

Eurosatory 2012: Renault Offers Multiple VAB Upgrades

Renault Trucks Defense (RTD) is displaying at Eurosatory the VAB Ultima, a highly protected 4x4 version of the armored personnel carrier in service with the French Army for several decades. The French government ordered 290 Ultima units in 2011, and the first 32 are expected to arrive in Afghanistan later this year. Preparing for the Afghan mission, the Ultima received enhanced protection, which includes a belly plate protecting from IEDs, slat grills and a new 'soft skin' protecting from RPGs. The total weight of the VAB Ultima is 15.8 tons, carrying eight troops and two crew members plus 1.8 tons of payload. The vehicle is also equipped with a Kongsberg M151 Protector remote weapon station and the usual counter-IED jammer kit.

Renault 4x4 VAB



While the French Army has opted to modernize its 4x4 VABs with the Ultima model, Renault is offering the VAB Mk3 upgraded model of the 6x6 VAB to export customers. At a gross vehicle weight of 20 tons the VAB Mk3 can carry up to 7.5 tons of payload. Retaining high off-road mobility, the vehicle can be equipped with a number of diesel engines, developing 320, 340 or 400 hp. The vehicle is configured to carry seven troops and three crew members. The basic configuration shown here carries the 25mm light turret from BAE.

Eurosatory Location

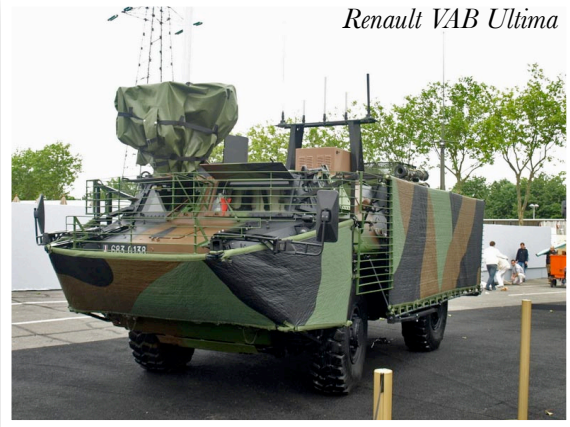
Renault Defense Trucks: EXT P3 Sud A520

Plasan Introduces Enhanced FlexFence Capable of Defeating Multiple RPGs

The new 'soft skin' applied to the VAB Ultima vehicle displayed at Renault Trucks Defence's yard is a new RPG protection is believed to be Plasan's FlexFence, adding higher protection form RPGs. While the new protection is also based on 'statistical defeat' of the RPG warhead, Plasan claims that due to the unique composition of FlexFence it defeat RPGs with higher probability than any other statistical armor. Plasan is displaying here the latest version of FlexFence, claimed to be even more effective than the previous version. The new version has recently performed live firing tests, where it repeatedly demonstrated multi-hit capability (stopping several RPGs aimed at the same module).

According to Plasan, the lightweight FlexFence offers the lightest weight counter RPG armor available today. Its durability has been proven in testing in complex terrain, like jungle, thick brush and wooded areas, where other protection concepts such as nets will not survive. The FlexFence is applied over the existing armor, without changing the vehicle's width or silhouette, maintaining the vehicle's ballistic protection while adding counter RPG armor.

Renault VAB Ultima

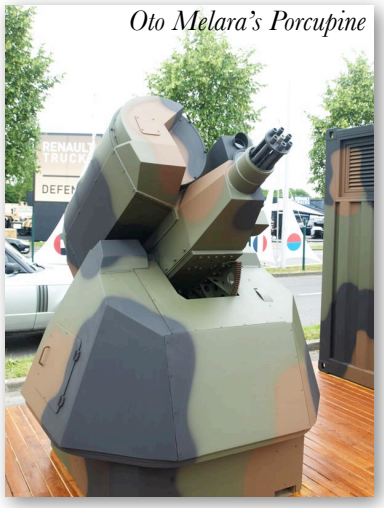


Defense Update

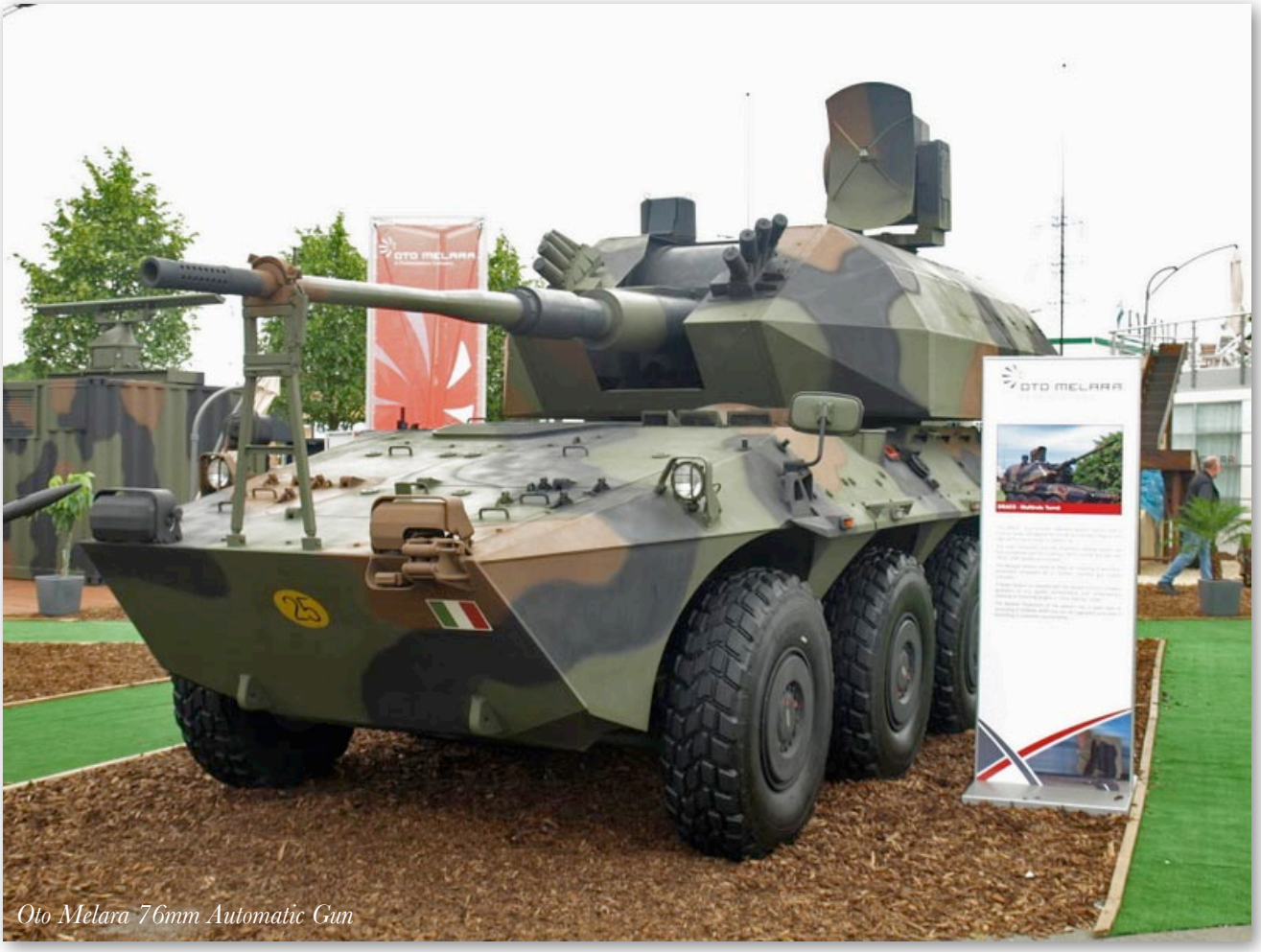
Oto-Melara Unveils Self Propelled Guns, C-RAM Capability

Oto Melara is launching a wheeled, turreted 155mm 39 Cal. self-propelled gun at Eurosatory 2012. The vehicle, a member of the Centauro family, is characterized by high tactical and strategic mobility and high survivability. The turret comprises the 155/39 mm caliber gun system, equipped with automatic loading system for ammunition and propelling charges that can be operated at any elevation. The cannon can fire standard ammunition or Vulcano guided ammunition. Oto-Melara has already developed a similar cannon mounting the company's 76mm automatic gun, used in air defense and surface attack, firing Vulcano or DART anti-air ammunition.

The company is also unveiling here the Porcupine, a remotely controlled M61A1 Gatling gun coupled with ammunition handling loader and a stabilized optronic infrared tracking system, providing 24 hour target engagement capability. One Porcupine C-RAM system would typically cover an area of 400x400 meter but additional remote firing units could be added to extend the protected area to defend against higher intensity attacks. A typical unit configuration would consist of four firing units, one command and control post for target designation and weapon control and 3D radar system of a track-while-scan type, providing surveillance and target tracking.



Oto Melara's Porcupine

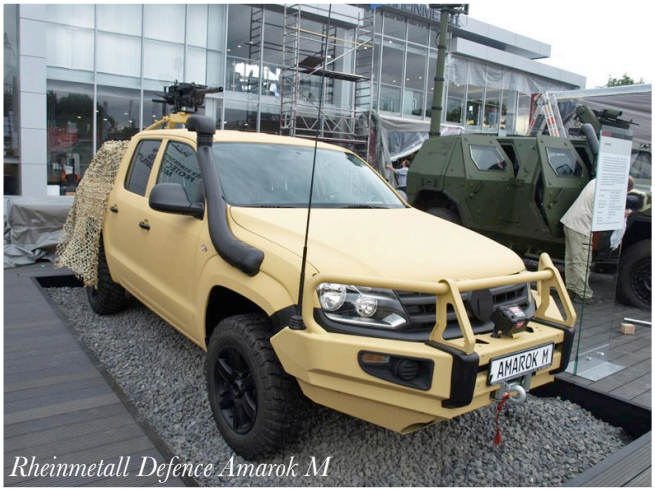


Oto Melara 76mm Automatic Gun

Defense Update

Eurosatory 2012: Rheinmetall Defence Introduces an Off-Road Pickup Truck

Amarok M, a new pickup truck from Rheinmetall Defence combines good cross-country mobility with comfort and road safety of conventional pickup trucks.Its maximum road speed is 182 km/h. The vehicle is available with 90 to 132 kW engines, and manual or automatic transmission (6 or 8 gears). It has all-wheel drive and off-road ABS and ESP, contributing to high off-road and on-road performance. The vehicle uses a ladder frame with standardized mounting points to make subsequent assembly easier. Amarok M can carry 1.259 ton payload with a double cab or 1.396 tons with a single cab. The vehicle can ford water obstacle 500 mm deep and travel a side slope of 50 degrees.

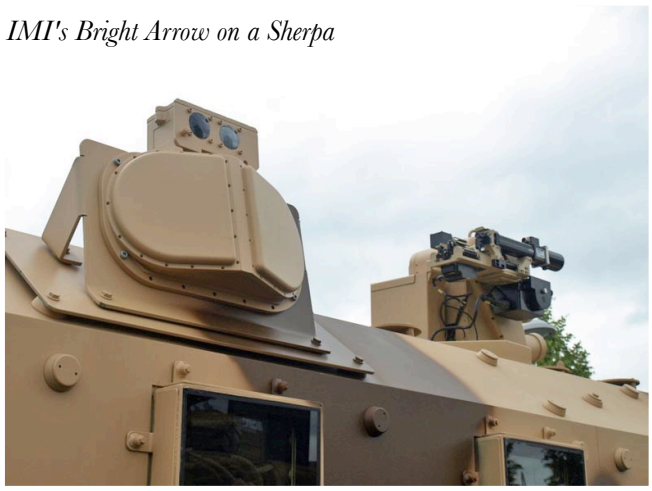


Rheinmetall Defence Amarok M

Eurosatory 2012: Renault Trucks Defense' Sherpa Displays IMI's Active protection Systems

Renault is displaying at Eurosatory 2012 an armored Sherpa equipped with IMI's Bright Arrow. The system depicts a new configuration for the IMI active protection system, featuring the redesigned PSR-10 APS radar from Rada, integrated with a stereoscopic IR sensor, both feed target data to the Bright Arrow mounted on the vehicle's roof. The launcher also carries a laser countermeasure device, employed as a 'soft kill' active countermeasure against guided missiles fired at the vehicle.

IMI's Bright Arrow on a Sherpa



Eurosatory 2012: Oshkosh Defense Demonstrates MEDEVAC M-ATV

In service with US forces in Afghanistan since 2009, the M-ATV the highly mobile all-protected vehicle is currently fielded in several variants. Oshkosh has received awards to date for nearly 8,700 M-ATVs, including more than 460 SFV variants. The SFV features a modified cargo deck, intended to accept specialized equipment based on each mission's requirements, and larger front windscreens for increased visibility. Oshkosh is displaying the M-ATV the Special Forces Vehicle (SFV) at its booth #J619 in Hall 6.

Another variant, the M-ATV Tactical Ambulance is participating in the live demonstration here at Eurosatory. This M-ATV Tactical Ambulance is built to meet an international need for a more protected battlefield ambulance that can travel more extensively off-road. Oshkosh worked closely with military medical professionals on the vehicle's design and interior layout.


M-ATV Tactical Ambulance

Defense Update

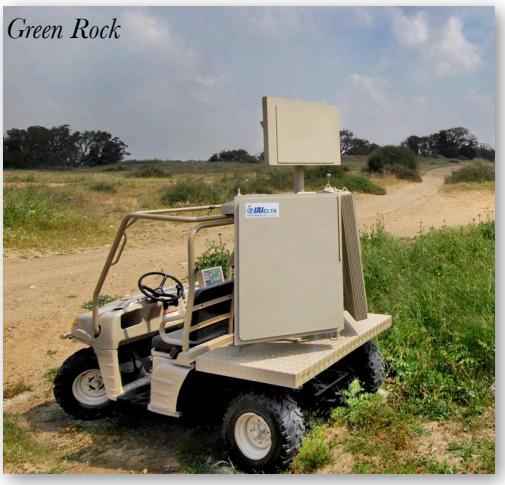
IAI's Green Rock, Black Granit Debut at Eurosatory 2012

IAI is unveiling two multi-sensor systems designed to support battalion level tactical formations, providing timely alerts and warning of imminent attacks with ballistic or direct weapons - mortars, rockets, missiles or snipers and guns.The Green Rock is a compact, mobile mortar and rocket detection, tracking and localization sensor. The system comprises two radar systems, one providing threat search and detection and with the other responsible for target tracking. The system provides warning alerts distributed directly to the battalion units, as the Green Rock can spot the impact point and firing source with high accuracy, sufficient to enable counter-battery precision fire to stop the enemy firing. The whole sensor is installed on an All Terrain Vehicle (ATV) and is capable to move and deploy with the battalion. Its area coverage is also designed to support the battalion's area of interest.

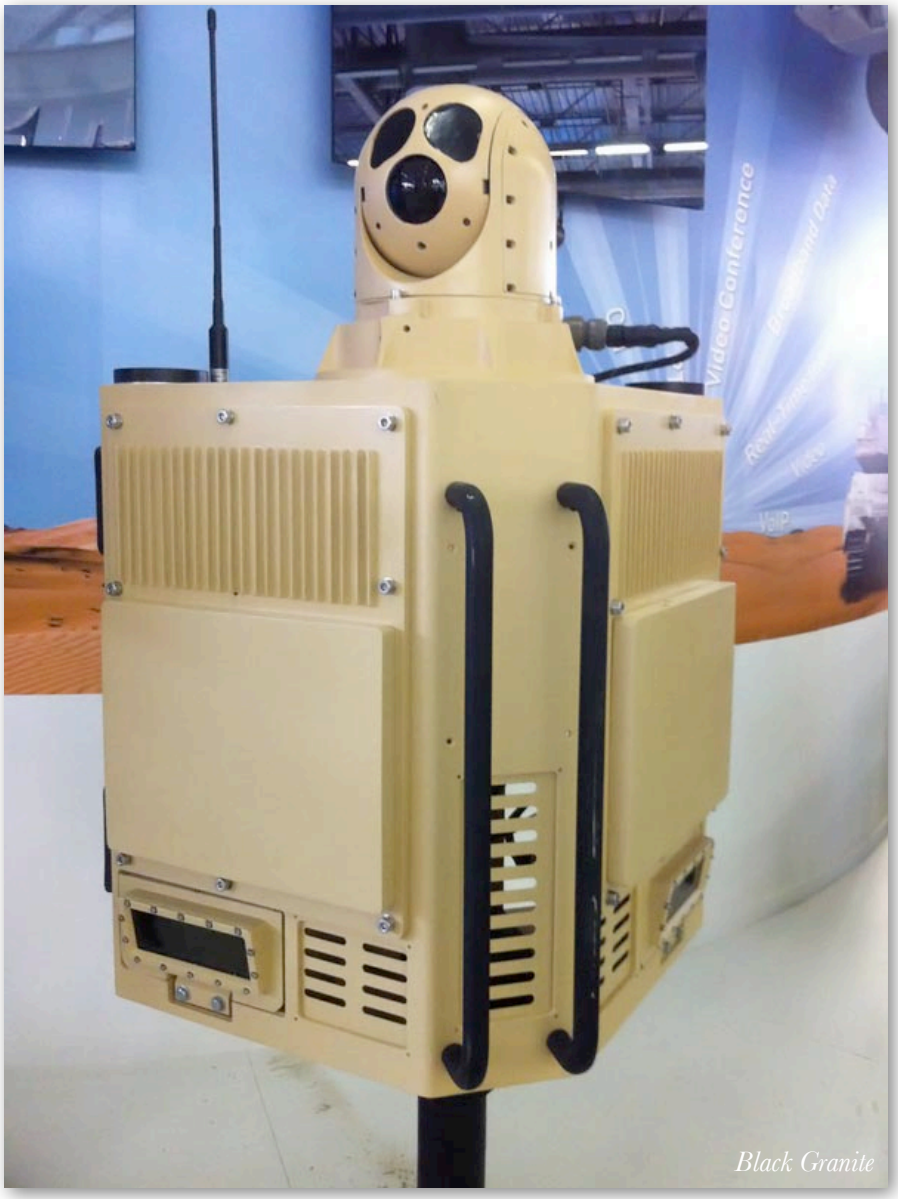
Black Granite is another tactical sensor designed to support the battalion and below. This sensor is also deployed on light ATV. The sensors included in this kit are designed for terrain dominance, and include wide area radar surveillance and multi-sensor electro-optical payload, SIGnal Intelligence (SIGINT) systems designed to operate semi autonomously - all coupled together to perform rapid identification of threats detected by the radar. To provide instant warning of enemy direct fire, guided anti-tank missiles in particular, the Black Granite is fitted with SWIR based Othelo, an advanced electro-optical gunshot detection sensor. Elta plans to complete the development of the two systems and begin testing before the end of 2012.

Eurosatory Location

IAI: HALL 6 Booth #E709



Green Rock



Black Granite

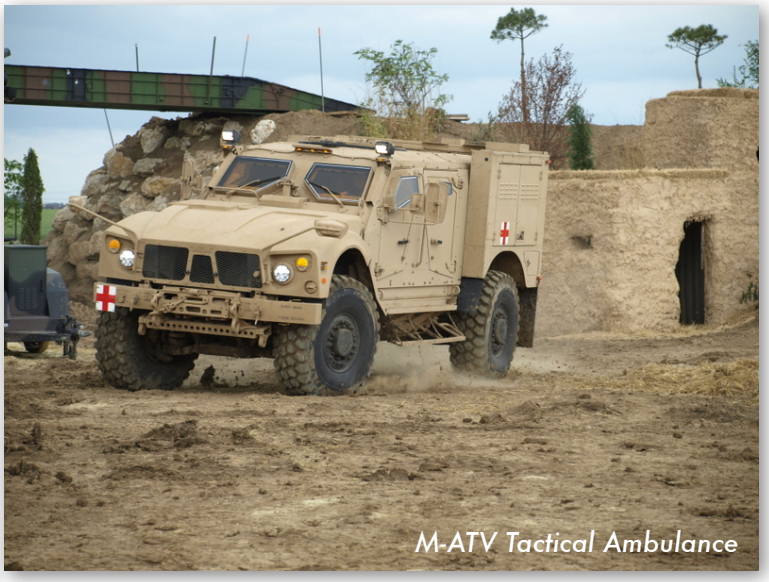
Defense Update

Eurosatory 2012 - Dynamic Demonstration

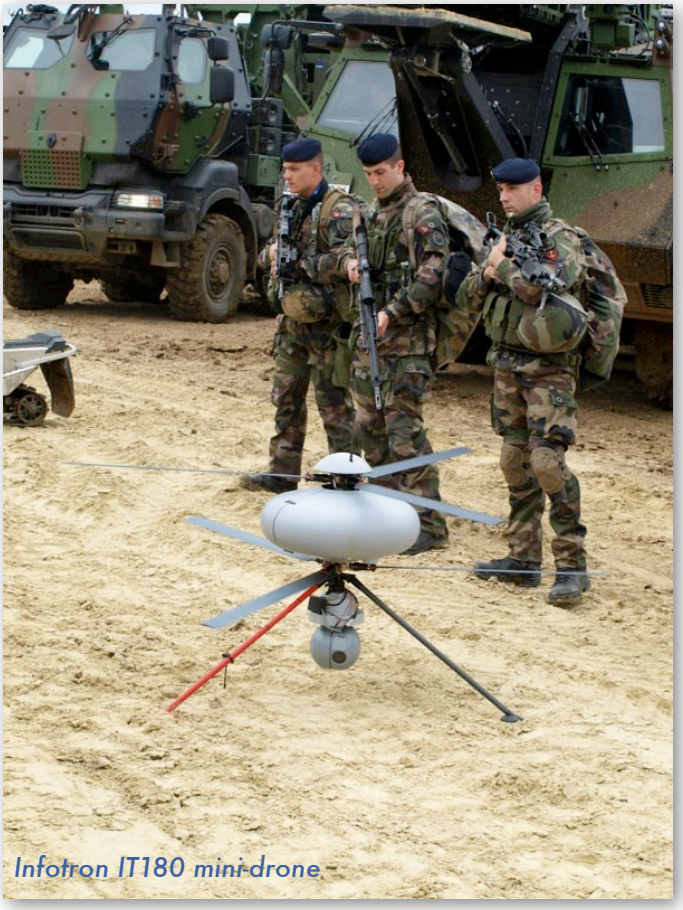
The Eurosatory 2012 dynamic demonstration is highlighting situations depicting 'real life' scenarios, from asymmetric combat, to law enforcement, crowd dispersal to dealing with hazardous materials and chemical or biological threats. The systems on display include armored vehicles of various types, including the French Renault Trucks Defence VAB 4x4 and American M-ATV armored ambulance from Oshkosh defense. Two types of unmanned vehicles were demonstrated in flight - the IT180 mini-drone from Infotron and HoverEye EX developed by Bertin. The demonstration also featured dynamic displays of several bridging solutions, these will be covered at a later stage.

More Photos are Available at Defense-Update Website.

Hovereye EX with M-STAMP Payload



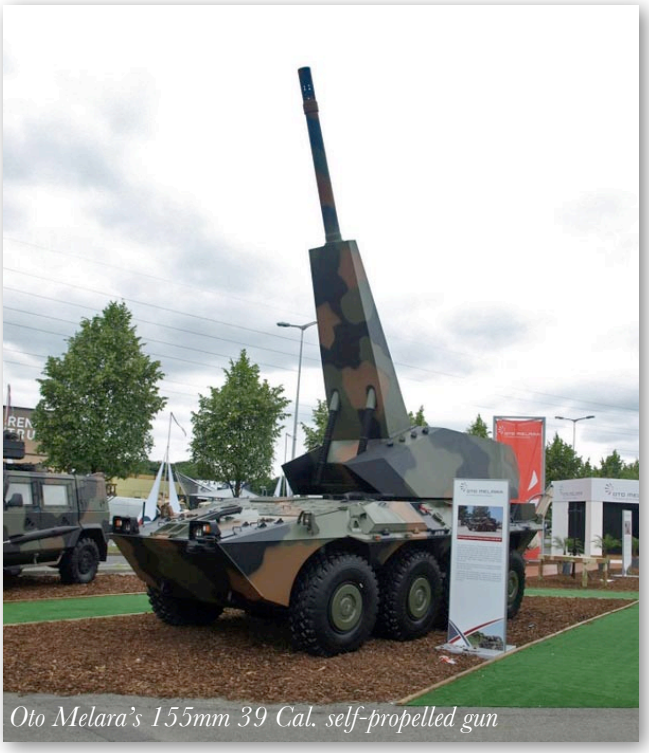
M-ATV Tactical Ambulance



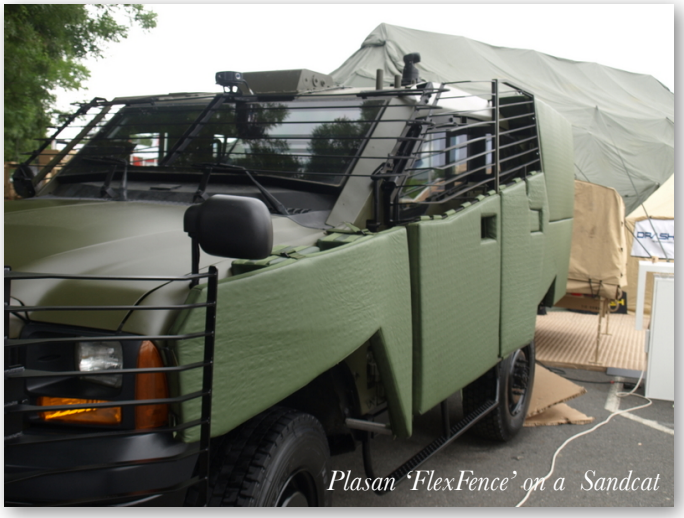
Infotron IT180 mini-drone

Defense Update

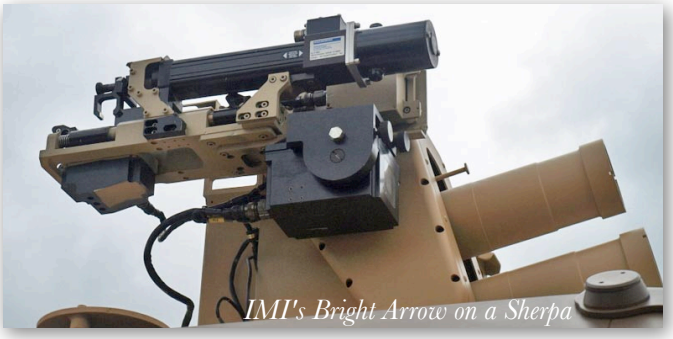
Eurosatory 2012 - Outdoor Exhibition



Oto Melara's 155mm 39 Cal. self-propelled gun

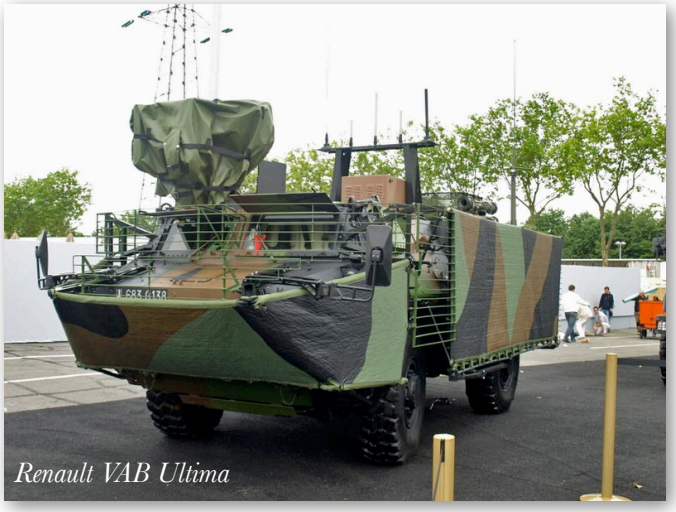


Plasan 'FlexFence' on a Sandcat

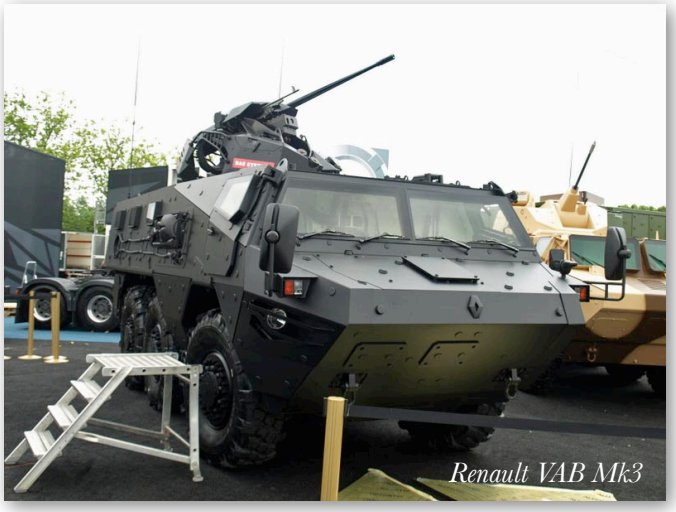


IMI's Bright Arrow on a Sherpa

Leopard 2 With RPG Kit



Renault VAB Ultima

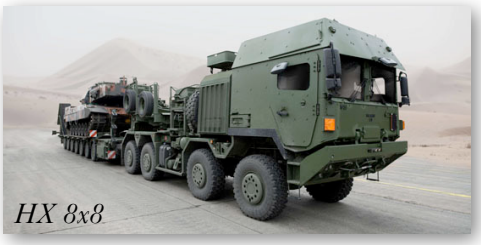


Renault VAB Mk3

Defense Update

Armored Trucks and MPVs

Mine protected vehicles and armored trucks were always one of the hallmarks at Eurosatory. This year Rheinmetall Defense is showcasing an advanced version of the protected HX series of its MAN subsidiary for the first time. This vehicle will be displayed with the ADS active hard-kill system. Other variants of the HX family will include the HX 8x8, which is currently competing for the Canadian 'Medium Support Vehicle System - Standard Military Pattern" (MSVS SMP) program.

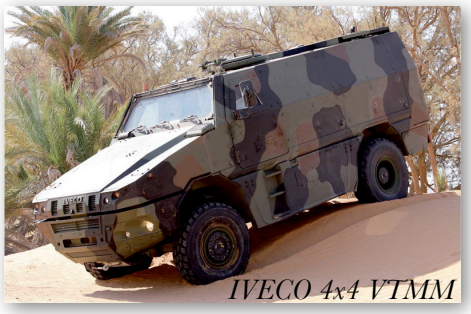


HX 8x8

Iveco Defense is displaying here several types of 'Medium weight Protected Vehicles' (MPV), developed in cooperation with the German company KMW. These include 4x4 and 6x6 versions including the 4x4 VTMM and Trakker, provided as off-the-shelf military trucks provided with ballistic armor and mine protection tailored for different protection levels. At Eurosatory 2012 the company also displays a 6x6 MPV version, configured as an ambulance/intensive care treatment unit, offering increased space and improved ergonomics for the medical team. The Italian Army has already ordered 12 such vehicles.

A popular truck in service with ten NATO countries is the Trakker, displayed here as a 6x6 tractor, pulling a Rohr trailer used by the German Army. Trakker is available in a large number of variants, and can be fitted with an armored cab. Iveco has recently scored a major deal with Switzerland, supplying 910 Iveco heavy trucks including 4x2, 4x4, 6x2, 6x6, 8x6 and 8x8 versions from the Stralis and Trakker heavy truck family. The company has also secured a supply order to equip the British Royal Engineers with 206 Trakkers, 6x6 and 8x8 configurations. Iveco is also competing on subsequent orders from Norway and Sweden, for the supply of new logistic vehicles.

Rheinmetall also unveil the Amorok - a new lightweight vehicle – RMMV, expanding its range of commercial off-the-shelf vehicles in the under 3.5 t weight class. Iveco Defense will highlight two new versions of the 4x4 Light Multirole Vehicle (LMV) – the Digital LMV and a new configuration optimized for special operations. The later is configured to seat five passengers and a driver. It is equipped with four doors to facilitate rapid dismount. An add-on armor kit enables enhanced ballistic and mine protection to meet increased threat levels. The LMV 4x4 Digital is a fully digitized CAN based electronic vehicle architecture integrated into the latest LMV variants. 150 such vehicles are already on order for the Austrian Army, to be delivered in seven different configurations.



IVECO 4x4 VTMM

Iveco is also supplying high mobility trucks to the Italian Army, one such vehicle SM8845 BAD on display here, is part of 169 modular load carrier program ordered by the Italian Army. Soframe, a subsidiary of the French Lohr Group, and Iveco, are supplying a similar vehicle to the French military, supplies a similar vehicle. This order will include up to 2200 high mobility vehicles, the 8x8 M32045 WM on display here represents one such configuration. Both variants feature different applique armored cabs, ensuring maximum protection for the crew and efficient tradeoff between protection and payload.

The armored version of the Russian Ural 6x6 medium truck is widely used in the Russian, CIS and many countries traditionally relying on Russian military support. These trucks have proved their reliability and effectiveness not only in combat actions as well as peacekeeping and rescue operations throughout the world. The new Ural 63095 Typhoon is a heavily armored truck based on the standard Ural platform, and fitted with enhanced anti-mine protection. The 24 ton Typhoon is designed to carry 24 soldiers in a protected environment. powered by a 450 hp diesel and features independent suspension for efficient off-road mobility. The truck features ballistic , IED and mine protection, The air-conditioned passenger compartment also features NBC protection. The truck carries 300 liters of diesel fuel, sustaining missions ranging up to 1,800 km in distance.

Eurosatory Location

Iveco Defence vehicles: EXT Pe6a D421
Renault Defense Trucks EXT P3 Sud A520
Rheinmetall: EXT Pe6b D210
Ural Automobile Works OSJC:
Hall 6 Booth: D231

Defense Update

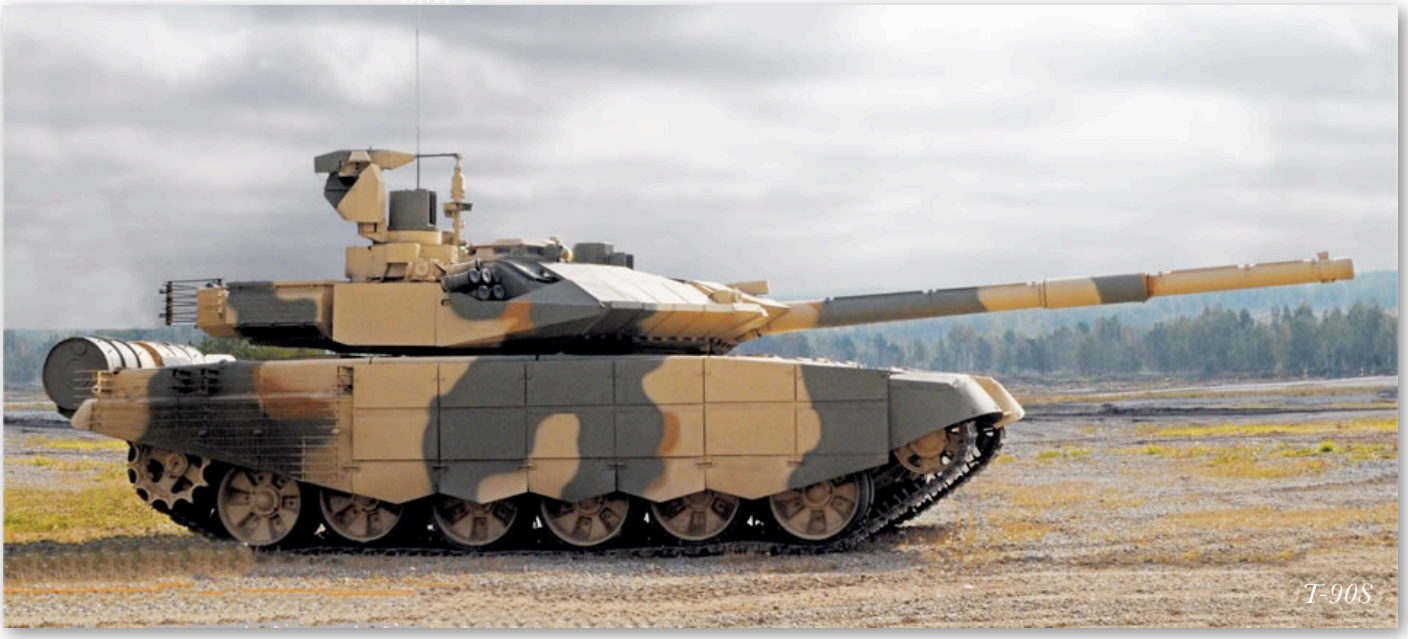
France, Russia Warming Defense Relations

With the warming relations between east and west, particularly France and Italy, the Russian display at Eurosatory is expected to be the largest ever. For the first time Russia is displaying the latest types of weapon systems, including the T-90S Main Battle Tank (MBT) upgrade, BMPT tank support combat vehicle nicknamed the 'Terminator. The Russian display will also feature the Tigr light armored vehicle, mounting the all-new Kornet EM anti-tank/multi-purpose guided missile.

arms exporters an important opportunity to seek new customers and industrial cooperation, where Moscow places special emphasis on the European market. "Many meetings are planned also with representatives of European companies. Special emphasis will be made on contacts with leading French defence manufacturers" Sevastyanov added.

Defense-Update has already covered the T-90M at Defexpo two months ago. We

recent years. "We are interested, first of all, in joint research and development. This kind of cooperation does not fall into the 'buyer-seller' category: it demands a wider cooperation to develop effective self-defence assets, including those for third countries" said Sevastyanov, "by combining our efforts we obtain a very strong synergistic effect. It is well seen, for example, in our projects with Thales, Safran and Sagem companies", Igor Sevastyanov noted.
The two countries established a special


T-90S

"We have been participating in the Eurosatory exhibitions since 1996, but this year's show is special. Russia has never brought such a number of full-scale new items. They are from the latest developments that clearly demonstrate a huge potential of the Russian defence industry", - says Igor Sevastyanov, deputy director general of Rosoboronexport, JSC and head of the joint delegation of the Russian Technologies State Corporation and Rosoboronexport. He said that events such as Eurosatory provide the Russian

plan to revisit this review with any new information expected to be available with this unprecedented European debut. Military technical cooperation between Russia and France has been growing fast in


BMPT

workgroup to expand Russian-French cooperation into the land forces equipment area. Its first meeting took place in January 2012, and the next one is scheduled for the end of June, just after Eurosatory show. Rosoboronexport is encouraging Russian developers and manufacturers to get involved in the workgroup activities to help define most prospective projects and ways of their implementation.

Eurosatory Location

Rosoboronexport: JSC Hall 6 D201

Defense Update

ReconRobotics Debut: Throwbot XT Reconnaissance Robot

ReconRobotics is introducing the new-generation Throwbot XT at Eurosatory 2012, which supplies warfighters and SWAT personnel with both video and audio reconnaissance capabilities during high-risk operations. Military fire teams and SWAT personnel can quickly gain situational awareness during high-risk operations and surveillance missions using this robot.

"Our objective with this product evolution was to dramatically increase the capabilities of our micro-robot without increasing its weight, and we accomplished that," said Jean-Luc Panetta, Vice President of Product Management and Engineering. "We are very mindful of the soldier's burden, and we believe that the new Throwbot XT is, pound-for-pound, the most versatile, robust, stealthy and easy-to-deploy robot system in the world."

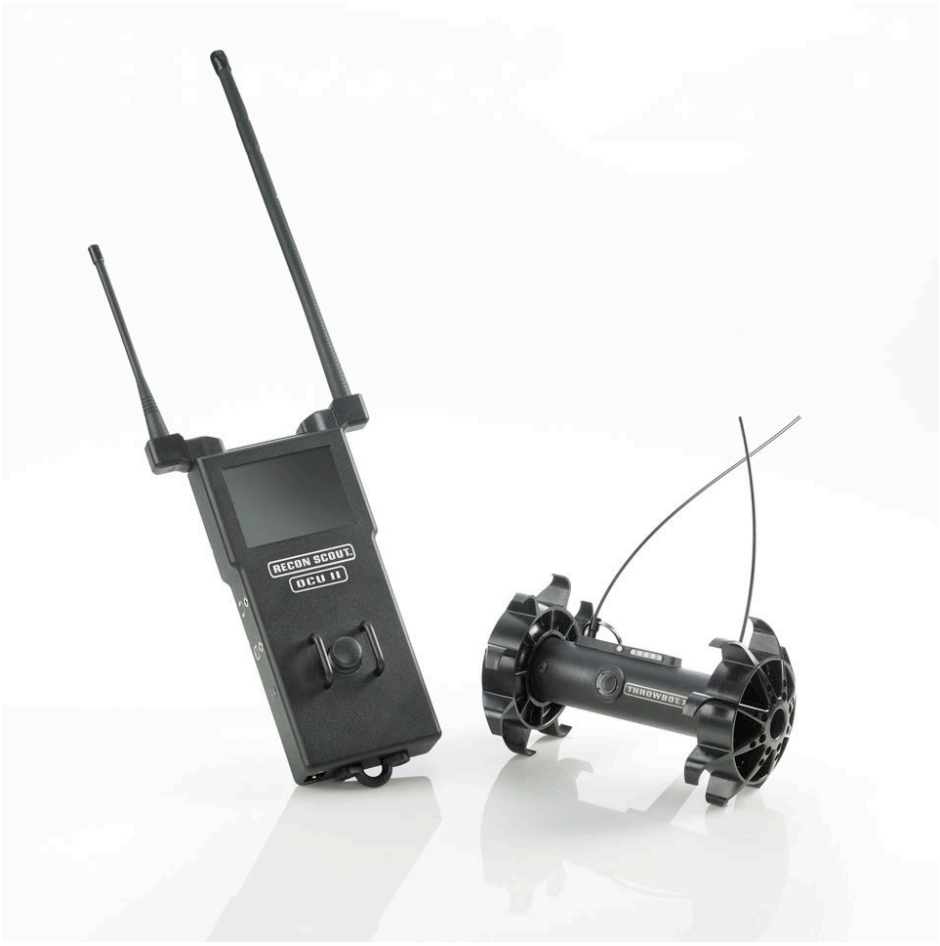
The Throwbot XT is inherently water and dust resistant, weighs just 1.2lbs (540g), and can be thrown up to 120 feet (36m). It is also exceptionally quiet and is equipped with an infrared optical system that activates automatically when the ambient light is low, enabling the operator to see in complete darkness.

In 2007, ReconRobotics introduced the Recon Scout robot and created an entirely new class of robots called tactical micro-robots. Unlike other military and law enforcement robots, which weighed 40 to 80lbs and were transported in a vehicle, Recon Scout robots were sublimely small and simple. Today, soldiers and SWAT personnel carry their Recon Scout robots in small packs or pockets and deploy them in under five seconds to gain lifesaving situational awareness and greater standoff distance. More than 3,700 of the company's micro-robot systems are deployed by the U.S. military and allied friendly forces, and by nearly 500 police tactical teams and bomb squads, worldwide. Nearly 2,000 of these robots are currently deployed with U.S. Army and Marine Corps fire teams in Afghanistan for use in urban warfare and compound clearing operations.

Read More at Defense-Update.com

Eurosatory Location

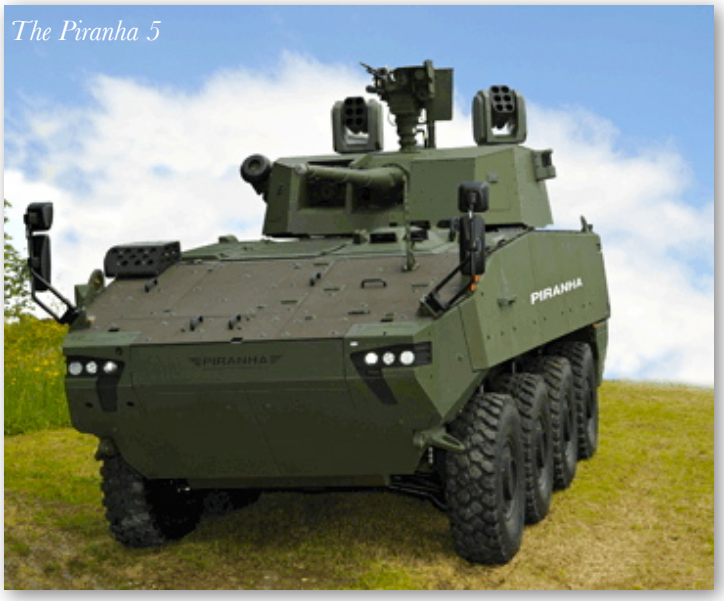
ReconRobotics: Hall 5 Booth L807



Defense Update

The Big Wheels are Rolling Again at Eurosatory 2012

The trend toward wheeled armored fighting vehicles (AFV) continues, despite vehicles becoming ever heavier. The main drivers for the demand for wheeled AFVs is the more efficient road mobility offered by these vehicles, enabling the military to perform more freely in urban and civilized areas, where extensive use of tracked vehicles would practically destroy the road network. Moreover, advanced active defense systems becoming available enable manufacturers to maintain reasonable level of ballistic protection, while defeating chemical penetrators (HEAT charged RPGs, missiles and projectiles).



The Piranha 5

Though current platforms are powered by conventional diesel propulsion, future AFVs are likely to employ hybrid electric propulsion, contributing to more versatile deployment, power generation and prolonged silent watch activities.

The vehicles likely to be in the limelight at Eurosatory are the 8x8 Piranha 5 from General Dynamics Land Systems Europe, 4x4 RG-35 from BAE Systems and the 6x6 VBTP-MR 17-20 ton armored personnel carrier (APC) from Iveco Veículos de Defesa, selected by the Brazilian Army as its future armored vehicle. Iveco is also developing an 8x8 version called SuperAV, both are amphibious vehicles, likely to be viable competitor for the US Marine Corps Marine Personnel carrier (MPC). Another company seeking this opportunity is Finnish company Patria, which has teamed with Lockheed Martin to market the vehicle in the USA.

Piranha 5 is latest member of the Swiss Piranha family. The vehicle on display has recently completed a successful trials series in Canada, as part of the Canadian Army evaluations of vehicles for the Canadian Combat Vehicle (CCV) program.
The configuration on display includes the RLS LANCE two-man turret mounting the 30mm automatic cannon. The vehicle provides seating capacity for eight crew members in the rear of the vehicle and sufficient payload for additional material. According to GDELS, Piranha 5 provides the highest levels of survivability against conventional and asymmetric threats while having the capacity to fill all battlefield roles such as APC, electronic warfare, ambulance, reconnaissance, command vehicle, mortar carrier and even direct fire platform, fitted with gun turrets up to 120 mm calibre. It can be delivered in either high- or low-roof configurations with open architectures, with over 15 tons payload and 120 kW electrical power.

Flexible Platform Configuration

Wheeled AFVs are usually more flexible for ad-hoc reconfiguration, as reflected by EVASAN, the new casualty evacuation (CASEVAC) variant of the VBCI, developed by Nexter. The VBCI built by Nexter is currently being delivered to the French Army. The new variant will be unveiled at the Eurosatory 2012. This new version is outfitted to carry two or four wounded soldiers in different configurations, depending on the level of medical assistance required during transportation. It has attachments for carrying two stretchers, medic seats and medical equipment necessary for the CASEVAC mission. According to Nexter, a standard VBCI can be configured into a CASEVAC or an armored ambulance vehicle in less than four hours.

GDELS is displaying at Eurosatory an NBC Recce vehicle configured on the Piranha 3 platform. This vehicle is the first of 12 units ordered by the Swiss Army; The CBRN system was developed by Thales.

GDELS Europe will unveil here the new Eagle 6x6, a growth version of the Eagle 4x4 multi-purpose vehicle. The EAGLE 6x6

Defense Update

was designed as a 'compact' off-road vehicle. The protected cabin (safety cell) with large internal volume is made of high-strength armored steel. A modular add-on armor made of steel or – for special requirements – made of composite material, offers very high protection against mines, IED and ballistic threats while always maintaining a high payload. The EAGLE 6x6 offers payloads of up to 6,000 kg and protected volumes of up to 16 cubic meters.

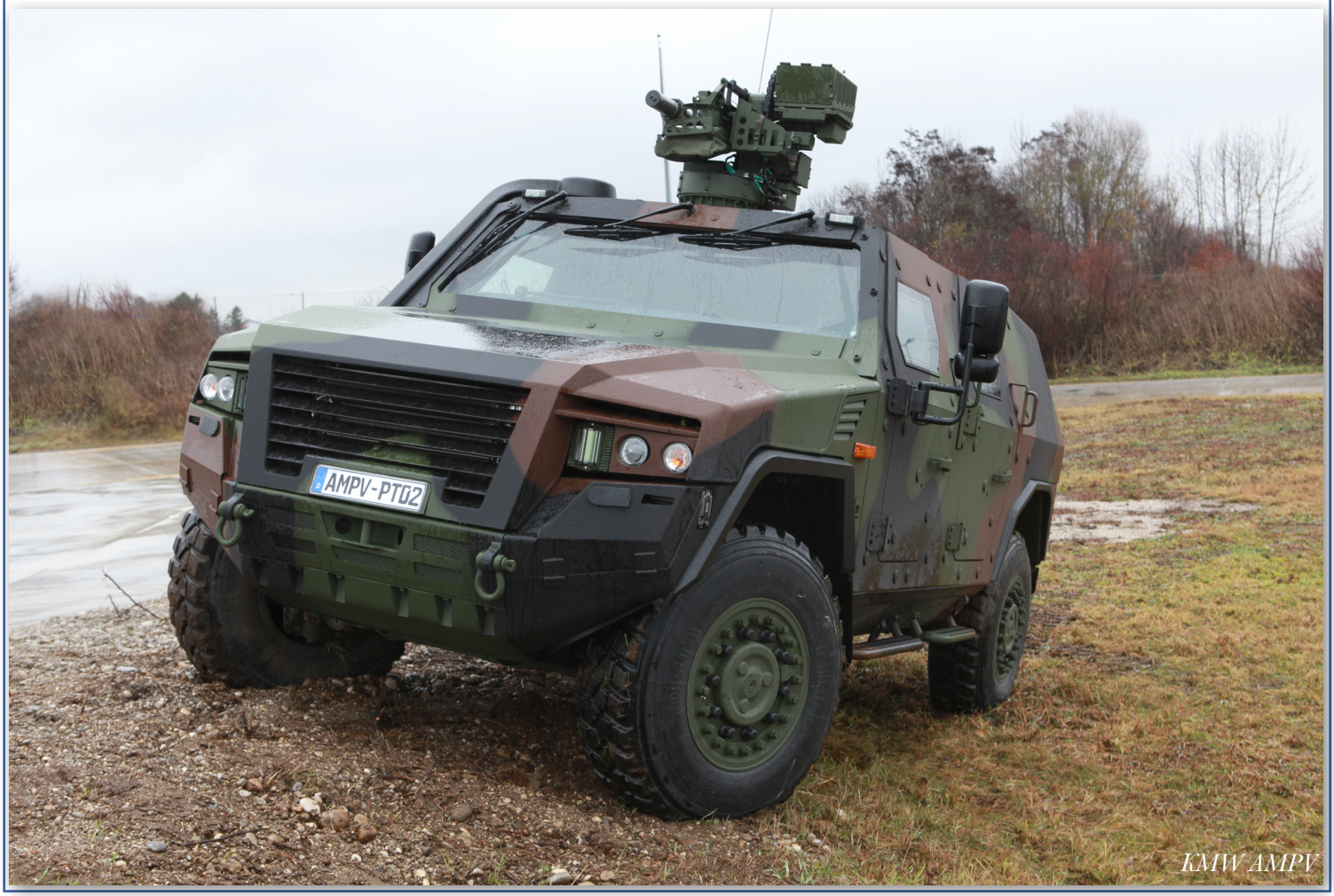
One of the largest 'big wheels' in the market is BAE Systems' RG-35. The company is positioning this vehicle between the classic Armored Personnel Carrier and the Mine Resistant Ambush Protected (MRAP). As such, it combines the high level of survivability of the RG31 mine protected vehicle with elements of the tactical mobility of the battle proven Ratel combat vehicle, gives you a new class cross-over combat vehicle (XCV) – the RG35 6x6. The 4x4 vehicle shown at Eurosatory 2012 was first configured as a reconnaissance variant, to address the Canadian TAPV requirement. It can be equipped with light and medium turrets, as well as indirect-fire weapons. BAE said the vehicle can easily be modified a number of ways to transport cargo, conduct routine patrols or be outfitted with cameras and other electronic surveillance missions.

Rheinmetall will display here the Boxer armored transport vehicle in its Bundeswehr command post configuration, together with the protected Armored Multi Purpose Vehicle (AMPV) configured as a recce vehicle. It will be displayed with the Rheinmetall Electro-Optics Vingtaqs II, which combines electro-optical reconnaissance with a battlefield radar, is on show as well, mounted on the AMPV as a mobile reconnaissance solution.

More insight into each of these programs will be included in Defense-Update Show Live editions. Click here to subscribe.

Eurosatory Location

Rheinmetall: EXT Pe6b D210
BAE Systems: EXT Pe6b H11
GDELS: Hall 5 C186
Nexter: EXT P3 Sud A600
Iveco Defence vehicles: EXT Pe6a D421
Patria OYJ: Hall 6 D338
Lockheed Martin: Hall 6 E571



KMW AMPV

Defense Update

SATCOM NEWS:

As the demand for Satellite Communications (SATCOM) has increased in current operations around the world, military forces around the world are investing in fielding terminals, mobile and SATCOM On-The-Move (SOTM) capabilities as well as in portable systems

Previously relied on military communications satellites, are expanding their use of commercial services, Military forces given the growing capacity available from many satellite operators. Eutelsat, the Paris based SATCOM operator operates 28 geostationary satellites in C, Ku and Ka-band, covering Europe, the Middle East, Africa and Central Asia, offering cross connectivity with the Americas. The network maintains three secure, redundant teleports in France and Italy. Iridium, a global SATCOM network is also widely used by the military, supporting on-demand long-range communications. The following briefs cover some of the latest SATCOM related applications unveiled at Eurosatory 2012.

Eurosatory Location

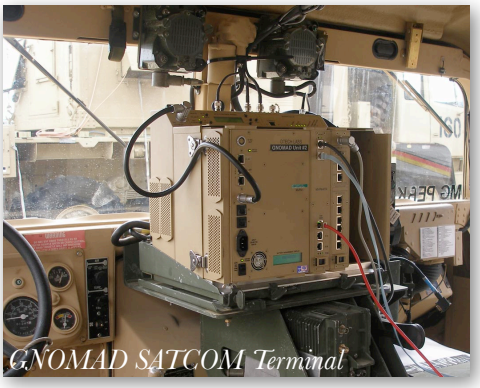
Eutelsat Communications:
Hall 5 Booth#JH 749

EXELIS GNOMAD – Taking SATCOM On The Move

ITT Exelis is introducing GNOMAD, a mobile, on-the-move satellite communications (SATCOM) system, providing over the horizon, satellite communications for data and voice while on the move using a low profile broadband antenna and baseband solution which is modem and radio agnostic.

The system was recently evaluated by the US Army under the Network Integration Exercise (NIE) 12.1 at White Sands Missile Range, N.M., The NIE is a series of semiannual evaluations designed to integrate and mature the Army's tactical network so that it can provide soldiers, civilians and mission partners with the information they need in any environment. The system provides Global Ku-band SATCOM on-the-move, supplying a mobile network for an array of military and government agency vehicles. The system employs encryption devices currently in use by military and commercial users, supporting secure networks (SIPRNET, NIPRNET) as well as commercial internet, and client/server applications such as C2PC/Blue-Force Tracker, medical records and biometrics. The GNOMAD enables modern soldier radios to connect to IP networks, providing beyond-line-of-sight communications to radios such as AN/VRC-92, -104, and -110 as well as transferring Voice over Internet Protocol (VoIP) services where supported.

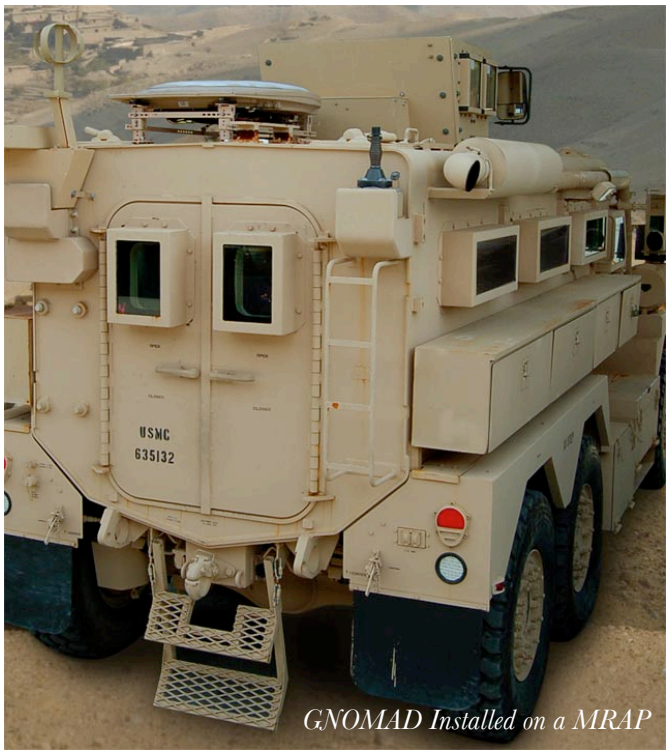
This will be the first appearance Exelis at Eurosatory, following its spin-off from ITT Corporation in October 2011. As a standalone company, Exelis is more agile in anticipating customers' evolving needs and in providing affordable capabilities and ready-now, high-technology solutions to military, government and commercial customers around the world. "A top priority for us is to proactively help our customers by identifying problems and providing affordable, innovative, mission-critical solutions." said Bob Durbin, vice president of Exelis Government Relations "We work closely with our customers and partners to address their evolving needs and today's global security challenges."



GNOMAD SATCOM Terminal

Eurosatory Location

ITT Exelis: Hall 6 Booth #J400



GNOMAD Installed on a MRAP

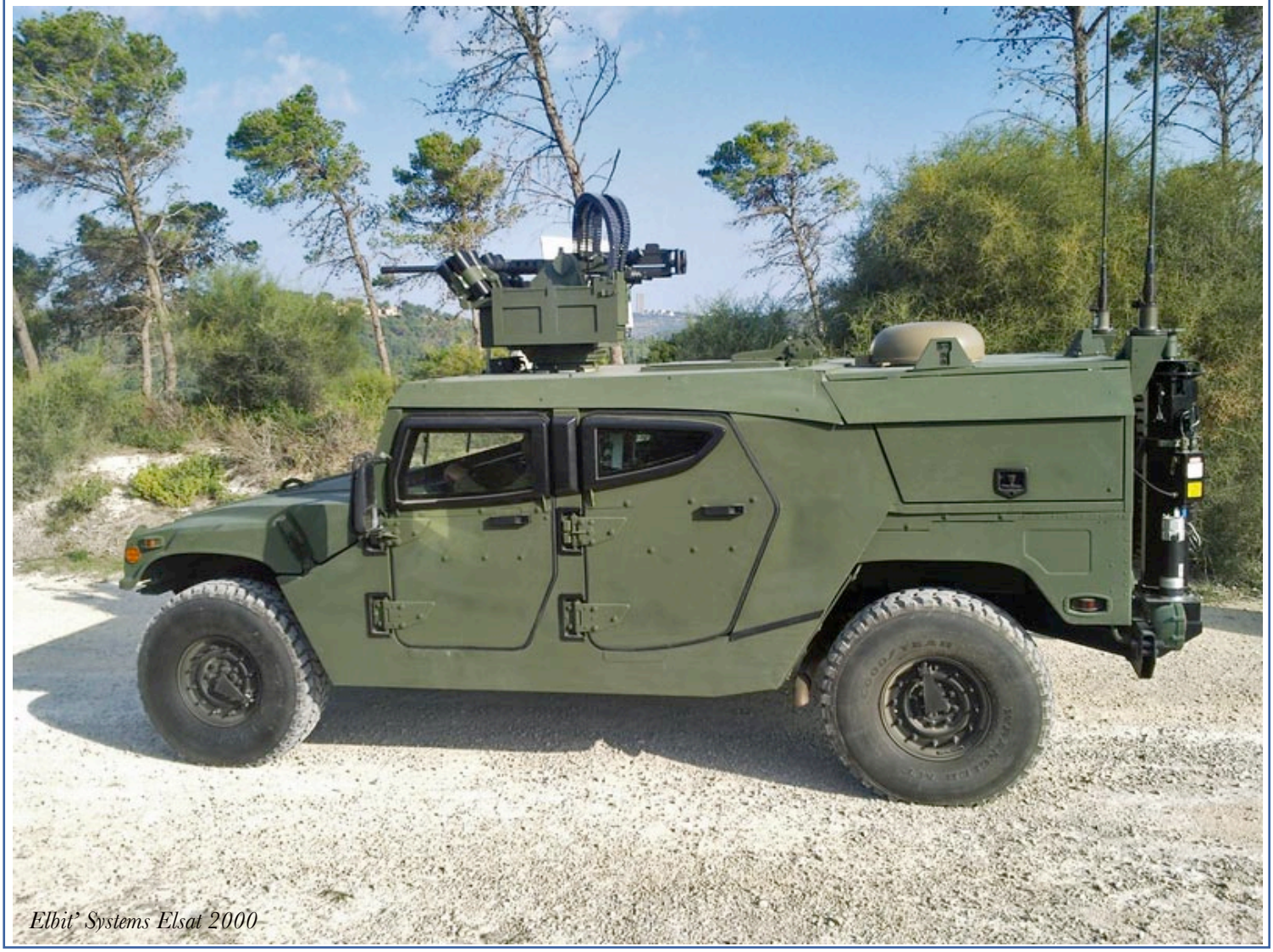
Defense Update

Elsat 2100 - Low profile SOTM Terminal

Elbit Systems is introducing Elsat 2100 satellite communication on-the-Move (SOTM) solution, employing a low profile antenna and terminal transferring high data rate broadband over SATCOM. The 80cm diameter antenna uses a new planar antenna technology offering high performance and ruggedness levels meeting the harsh field conditions. The system can be installed on a flat roof area of any vehicle platform. The system integrates a Burst Mode Frequency Division Multiple Access (BM-FDMA) SatCom modem, a technology that allows extremely low visibility and optimal utilization on Ku band. The system performs automatic satellite acquisition, re-acquisition and tracking within its operational envelope without user intervention or configuration.

Eurosatory Location

Elbit Systems: Hall 6 Booth #D640



Elbit' Systems Elsat 2000

Defense Update

Elta's MANPACK SATCOM is Designed for Special Ops

A true man-portable system offered by Elta Systems is ELK-1895, a lightweight man-pack tactical SATCOM terminal, carried and operated by a single soldier. Developed with special-forces applications in mind, the terminal can be adapted for submarine transportation.

The tactical terminal supports any commercial geo-stationary Ku band satellites footprint, communicating with all network subscribers within the satellite footprint, (including Over-The-Horizon (OTH) and beyond Line of Sight (BLOS). It sends and receives voice, data and compressed video over a secured communication link. The terminal includes all elements in a single, compact module, including the transceiver, antenna, power amplifier and user interface. The terminal establishes a fast SATCOM link without revealing the unit's geo-location. The system is preprogrammed, prior to mission, to automatically direct itself to available Ku-band Geo Communication Satellites.

Eurosatory Location

IAI: HALL 6 Booth #E709

GILAT Takes SATCOM Underground

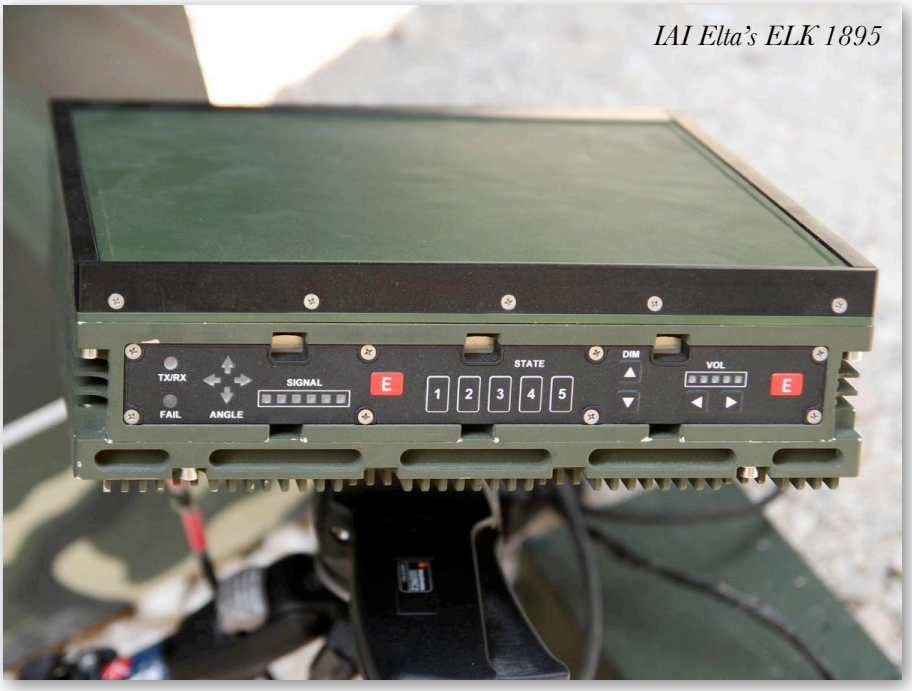
GILAT SATCOM is introducing a unique satellite link providing a global link to users in deep underground, closed or remote facilities. The company offers a turnkey solution called Suricate, connecting the user via tactical radio link, acting as a dynamic relay system, connecting remote headquarters to forward units located inside buildings or even underground, anywhere in the world. The SATCOM antennas can be located up to 6 km from a structure, thus enabling the facility's location to remain concealed. The solution - which is already operational - is ideal for military facilities, mines, high-security installations, expeditions to remote locations, skyscrapers, and maritime users.

The system provides complete coverage for iridium (satellite) devices in underground and other closed facilities without the need for a sky view. Available in either wired or wireless configurations, the solution allows communication over iridium satellite phones – carrying up to three calls simultaneously per link - within secure surroundings such as military operation rooms, bunkers, etc. The system also provides iridium users with many of the benefits of optical fiber, including improved signal quality and ease of installation in addition to extending GPS signal indoors.

Gilat is also introducing the Dynamic Relay System (DRS), an Iridium - Tactical Radio Solution that enables headquarters to monitor and break into a tactical network, regardless of the distance between them. The solution employs the DRS IP Mesh Radio network, which adapts to any tactical communication system, whatever the frequency range or modulation method. Equipping a network with DRS devices instantly provides tactical echelons with ad-hoc networking capabilities.

Eurosatory Location

Gilat SATCOM: Hall 6, Booth #CD671



IAI Elta's ELK 1895

Defense Update

L3-Com Linkabit Standardizes WIN-T IP SATCOM Waveform

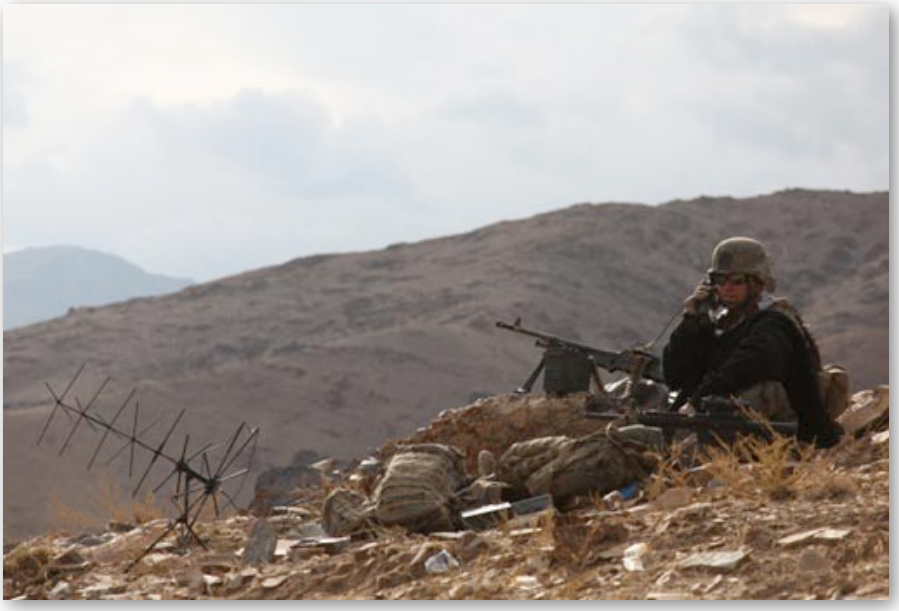
L-3 Linkabit provides turnkey SATCOM On-The-Move solutions that enable mobile and halted forces to collaborate, access Global Information Grid (GIG) resources, and exchange voice, data and video in a tactical environment. The MPM-1000 modem product family, which, when combined with an antenna and tracking system, provides an off-the-shelf SATCOM On-The-Move solution for both military and commercial applications.

The system's core has been selected as the standard net-centric IP SATCOM Waveform for the for the new WIN-T theater-level communications grid, facilitating full mesh networking, supporting SATCOM On The Move (SOTM) applications. This solution employs the Network Centric Waveform (NCW) and an FSS-4000 series OTM antenna, supporting native Ethernet encapsulation, which makes it easy to configure military networks that require COMSEC, TCP accelerators and other IP networking devices.

The system supports peer-to-peer communications between terminals, given that one terminal is employed as a network controller. The terminal is designed to conserving bandwidth, supporting 'bandwidth on demand', tailoring for dynamic missions. The system can receive up to four stations and transmit to two stations simultaneously. The system is designed to maintain Low Probability Of Intercept (LPI) and Exploitation, and its low latency meets the levels required for Voice Over IP applications. A typical application is the Prophet Spiral 1+ mobile SIGnals INTelligence (SIGINT) system mounted on a specially configured HMMWV. The system employs the TRM-1000 for the wideband non-line-of-sight communications linking over Wideband Global SATCOM (WGS) satellites.

Eurosatory Location

L3-COM: Hall 6 Booth #J517



JEM Gains SATCOM Access Via Software Upgrade

Thales Communications Inc. is now certified to offer the Ultra High Frequency (UHF) SATCOM integrated Waveform (IW) with its AN/PRC-148 Joint Tactical Radio System (JTRS) Enhanced Multiband Inter/Intra Team Radio (MBITR), also known as 'JEM'. SATCOM IW capability eliminates the need for warfighters to carry their existing heavy, manpack tactical radio systems, and enables each member of the team to deploy with a fully-interoperable, beyond line-of-sight (BLOS) capability. Users can now access SATCOM IW on their fielded AN/PRC-148 JEMs via software upgrade, producing minimal impact on deployed radios and requiring minimal operator intervention. The IW upgrade will provide both commanders and users with increased voice quality, higher data throughput, improved user HMI, and increased command and control capability on the battlefield, all in a smaller, lighter package.

As the demand for SATCOM has increased in current operations around the world, SATCOM IW (MIL-STD-188-181C, 188-182B, and 188-183B) offers a significant increase in capacity over legacy Demand Assigned Multiple Access (DAMA) SATCOM. UHF SATCOM enables users to operate globally on-the-move and under both severe weather conditions and cluttered ground cover. SATCOM IW, developed by the U.S. Defense Information Systems Agency (DISA), doubles UHF SATCOM capacity of existing communications services employing Time Division Multiple Access (TDMA) methods. The use of Mixed Excitation Linear Predictive (MELP) voice encoding improves overall voice quality.

Eurosatory Location

Thales Group: EXT P3 Sud #A690

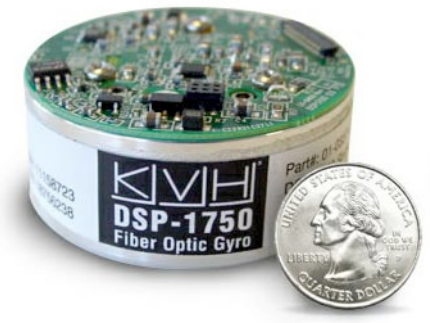
Defense Update

Maxing IMU Performance into a Small Form Factor

KVH is introducing the new Series 1750 Inertial measurement Unit (IMU) at Eurosatory. The module weighs less than 1.4 lbs. (<0.6 kg). The compact package and mounting features enable easy drop-in replacement to both enhance performance and reduce cost in retrofit applications., such as unmanned and autonomous systems. The Series 1750 IMU is the new flagship in a series of small, advanced navigation and stabilization systems under development at KVH, combining the company's Fiber Optical Gyro (FOG), solid-state MEMS accelerometers and E•Core ThinFiber technology to create a commercial-off-the-shelf IMU offering high accuracy at very low noise.

"System designers and integrators have been requesting a convenient, compact solution for applications ranging from stabilization and pointing of high-speed gimbals to autonomous vehicle control and navigation," explains Jay Napoli, KVH's vice president of FOG/OEM sales. "We've developed an IMU that is less costly and offers better performance than competing systems, while also offering an industry standard RS-422 interface along with user programmable data outputs, making it very easy to integrate into new or existing applications. Designed to withstand demanding environments with extreme stability. The device delivers excellent bias stability (<0.05degrees/hr), in a cylindrical package that measures only 3.5" in diameter x 2.9" high (89 mm diameter x 74 mm high), utilizing a flexible interface to fit small spaces.

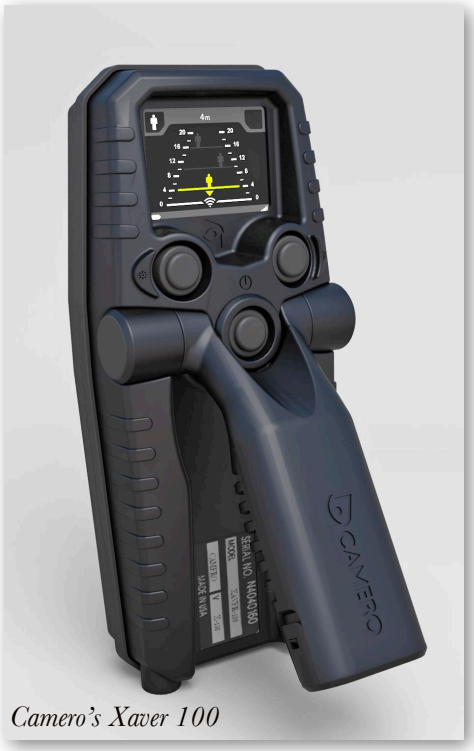
The new system adds to KVH's TACNAV the Fiber-Optical Gyro (FOG) based tactical navigation system product line, which has



become an essential element of vehicular situational awareness systems, maintaining full functionality even in GPS-denied environments.

Eurosatory Location

KVH: Hall 5 G749



Camero's Xaver 100

Xaver 100 Sensor Can See Through Walls (STTW)

Camero-Tech is launching the latest member of the Xaver Sense Through The Wall (STTW) radar, designed to assist assault teams and warfighters employed in urban operations to 'see through walls'. The new Xaver 100 is an ultra-portable, handheld 'presence-of-life' detector providing military, law enforcement, and search & rescue personnel with critical information in real time by detecting the presence of life behind walls. Designed for use by tactical teams and first responders, the sensor provides instant situational awareness and target acquisition data, detecting human presence at distances up to 20m. The sensor can also be operated in stand-off mode, at a distance from the wall.

Eurosatory Location

Camero-Tech: Hall 6, Booth #D691

More insights will be included in Defense-Update Show Live editions. Click here to subscribe.

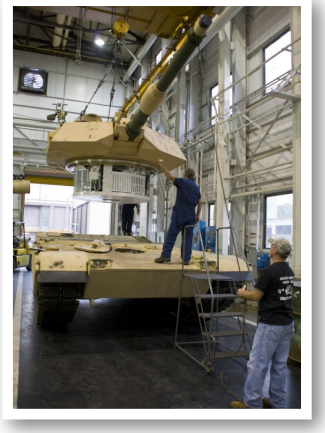
Defense Update

Simulation & Training

Armed Forces are being more committed in multi-face and changing conflicts and situations. Full scale training is getting more and more costly and all countries are facing an economic downturn. Eurosatory is addressing this trend with the Training and Simulation cluster. The cluster offers a focal point for these visitors, addressing the need for improving operational skills and readiness despite force reduction and austerity measures affecting many armies and security forces.

COMBAT VEHICLES

Combat vehicles are the core of the modern military force. In recent years, the difference between armored fighting vehicles and unprotected utility vehicles has faded, as military forces have engaged asymmetric threats compromising all assets, regardless of their echelon. It has also become evident that vehicles and personnel are exposed to attack over 360 degrees – front, flank, top, belly or the rear, raising the growing interest in 360 degrees protection, by passive and active protection means.



The role of the Main Battle Tank is maintained, at least in the growing military forces in Asia, North Africa, the Middle East and, to some extent, Latin America. Considerable interest and debate follows the evolution of Infantry Combat Vehicles – tracked or wheeled – different concepts are aimed at full-scale (high intensity) military operations or low intensity conflicts.

Mine and IED protected troop carriers are the latest category of combat vehicles that evolved in recent years. This category has always been available but such vehicles were fielded in relatively small numbers, supporting peacekeeping forces and special missions. Protecting the massive involvement of western armies in the wars in Iraq and Afghanistan demanded tens of thousands of such armored, mine protected vehicles that are now fielded and require refurbishment, and modification to adapt them for continuous use. The requirement for improved mine and ballistic protection for all tactical vehicles is now mandatory, and for these platforms, optimized chassis, protection systems and vectronics are likely to dominate the indoor and outdoor display at the upcoming Eurosatory show.

DEFENSE-UPDATE SHOW LIVE COVERAGE

Topics	Publication	Distribution	Availability	Pages
Preview I	June 11, 2012	Online public	Defense Update	8
Preview II	June 8, 2012	Subscribers	email	15
Preview III	June 9, 2012	Subscribers	email	18
Show Edition	June 10, 2012	Online Public	email	25
Day I	June 11, 2012	Online public	Defense Update	9
Day II	June 12, 2012	Online Public	email	8
Day III	June 13, 2012	Online Public	email	8
Day IV	June 14, 2012	Online Public	email	8

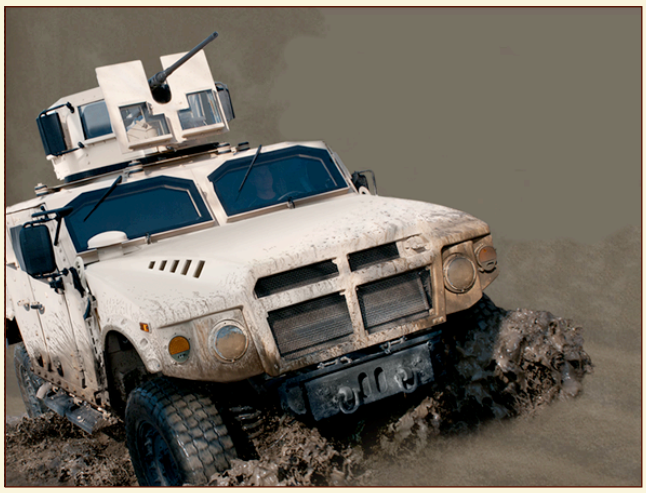
Defense Update

UNMANNED SYSTEMS TECHNOLOGIES

Responding to a growing interest in the use of unmanned systems and robotics, (20% of visitors have expressed interest in these applications) Eurosatory highlights such systems in the UAV-UGV cluster, which has been steadily growing in recent shows. The cluster offers manufacturers to promote their products in a specific area. Adjacent to this area is the 400m2 arena, where robots are performing live demonstrations, negotiating obstacles, highlighting mobility, handling, and mission performance. In recent years Eurosatory has attracted a growing number of UAV/UGV manufacturers, including Aerovironment, G-Nius, Infotron, Meggitt, Swisscopter and Workfly. Other UAV/UGV manufacturers are exhibiting in other halls, as well as in the outdoor live demonstration.

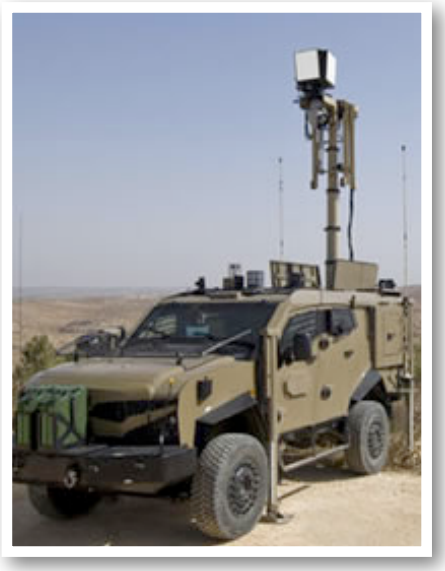
ISR OPTRONICS & NIGHT VISION

Modern military operations are performed frequently at night, when the ability to see through darkness offers dramatic advantages in asymmetric warfare. Night vision and thermal imaging equipment is highlighted here at the Day, Night Vision & Optronic cluster, and throughout the exhibition. Over 400 exhibitors have displayed optronic equipment at the 2010 Eurosatory, and 20 percent of the 53,000 visitors expressed interest in these applications. Beyond the enabling of night vision, optronic equipment is relevant to much broader applications, for intelligence gathering, fire control, command and control, area surveillance, battle damage assessment and search and rescue and much more. These applications will be addressed in specific clusters or by exhibitors in the main halls.



JLTV - Setting the Stage for light Armor

The U.S. Army-Marine Corps Joint Light Tactical Vehicle program destined to replace the HMMWV is setting the stage for the next generation light tactical vehicles. The new vehicle will be heavier, though more maneuverable compared to the HMMWV, thanks to a more powerful engine, and all-terrain mobility enhancements. Electrical supply has also been augmented by more powerful alternator to feed many vetronic, command,control and communication systems, and multiple self protection electronic subsystems on board. (More on JLTV)



Eurosatory Highlights

Modern and futuristic warfare will undoubtedly become some of the main themes of the show. The French 'Scorpion' program, is reaching a level of maturity enabling the industry group to showcase the capabilities of the new generation of vehicular and dismounted combat systems, command and control and integrated networking, that will be showcased in an operational demonstration scheduled for june. Similar concepts extensively networked troops and units, unmanned systems, ISR-based command and control, and advanced networking maximizing the use of precision attack, are likely to be highlighted by U.S., German, British and the Israelis.

IAI Elta ISRV has been selected to become the IDF next Multi-Sensor land recce vehicle, supporting the growing needs for organic intelligence support at the combat echelon.

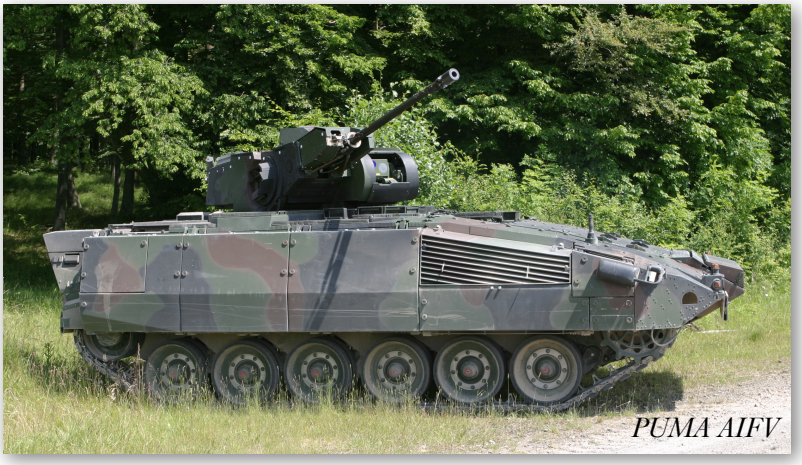
Defense Update

Eurosatory 2012 - a Compass for the Global AFV Market

Eurosatory provides an excellent insight into the global armored vehicle industry, indicating the trends, technologies and evolving requirements reflected by the vehicles on display, live demos as well as the technologies shown by tens, even hundreds of suppliers and innovators.

Lighter is Better?

The most obvious trend is the shift from the heavy armored fighting vehicles (AFV) to lighter, more maneuverable yet highly protected AFVs. This trend is indicated mainly in western programs, in countries that foresee their military to be involved in contingencies overseas, mainly in lower intensity conflicts - like U.S., Canada, U.K., France, Germany, Italy, Spain, Denmark, Netherlands, Norway, Sweden and, to some extent - Brazil. These countries have ceased producing Main Battle Tanks (MBT), and have shifted their focus to tracked AIFVs such as FRES, PUMA, CV90 and Dardo. Overall, the balance between tracked and wheeled platforms is maintained, yet the share of MBTs in these countries' Order of Battle (ORBAT) continues to decline.



PUMA AIFV

Since most of these programs are in production, teaming for new ones is key for future success of specialized original equipment manufacturer (OEMs). The US Ground Combat Vehicle (GCV), Joint Light Tactical Vehicle (JLTV) and, Marine Personnel Carrier (MPC) programs, Israeli Namer AIFV, Canadian Close Combat Vehicle (CCV) and Tactical Armored Patrol Vehicle (TAPV), the French Scorpion and VBMR, the British FRES-SV and Australian Land 121/4 programs are some of the main opportunities currently underway. More could be on the horizon as coalition forces return from Afghanistan and begin to reset and rebuild their forces and capabilities for future challenges.

More insight into each of these programs will be included in Defense-Update Show Live editions. Click here to subscribe.

Opportunities for New Designs

Eurosatory will provide 'reality check' for new trends. In past years (2008-2010) the coalition forces involved in the Iraq and Afghanistan conflicts demanded more protection and were willing to pay for armor. Today, defense budgets are tighter and requirements focused on short-term, with the 2014 withdrawal from Afghanistan in sight. AFVs are still making the basis for any military force. In fact, Armor and blast protection is considered 'part of the package', an obvious capability that must be provided for in a modern combat vehicle.

However, threatened by the cheaper, ever more capable and precise anti-tank weapons, armor protection must be increased to hitherto unaffordable weight and size. Hence, some of the solutions considered by the military include the introduction of alternative means of protection, such as soft-kill and hard-kill active protection, therefore 'peeling off' some of the heaviest armor layers, designed to defeat tandem high-explosive hollow-charges (Tandem HEAT) as well as high speed kinetic penetrators fired by enemy tanks. Protecting the crew and weapon systems against blast can also be achieved by introducing new materials and blast-absorbing techniques, that could further reduce weight.

More insight into each of these programs will be included in Defense-Update Show Live editions. Click here to subscribe.

MBTs Still Going Strong in Asia

Countries facing potential cross-border opponents and likely to engage in high intensity land warfare still value the use of Main Battle Tanks and therefore continue to develop, build, and upgrade MBTs – these include Russia, South Korea, India, Pakistan, Iran, Saudi-Arabia, Egypt, Israel

and Turkey, each maintaining running MBT production or upgrading programs, with all countries, except Saudi-Arabia and Egypt, opting to develop indigenous designs rather than buy off-the shelf foreign tanks. Most countries retain domestic manufacturing capabilities in terms of metalwork, manufacturing and assembly of automotive systems, yet some are still lacking the knowhow and capabilities in developing and producing composites and ceramic protection modules, advanced main armament and ammunition. Other opportunities for OEM (Other Equipment Manufacturers and subcontractors) are in the field of self-protection, electronics and optronics and CBRNE (life support). Camouflage and concealment, which requires multi-disciplinary expertise in signature measurement and reduction is also a field often requiring expert advise. Introduction of health management capabilities to improve logistics could also be an opportunity for foreign suppliers improving the sustainment of such complex systems.

More insight into each of these programs will be included in Defense-Update Show Live editions. Click here to subscribe.

Leopard 2A7

Second Hand Tanks are Popular

As western armies have been phasing out their advanced tanks (primarily Leopard II), a growing market for second hand tanks has also evolved, primarily for the Leopard II. Tanks withdrawn from German, Dutch and Danish armies were sold in recent years as military surplus. More tanks are likely to be offered by the Austrian and Swiss armies, as these countries are implementing planned cuts. Among the countries buying those tanks were Canada, Chile, Brazil and Singapore.

These markets open new opportunities for suppliers, offsetting for the loss of some domestic markets. Yet, for some, expanding operations overseas means higher cost of operation, at a time they are most vulnerable. One's weakness is always the someone else's opportunity, and, for cash rich distributors in developing markets in South Korea, India, Singapore, Turkey or Brazil - leveraging knowhow and low-volume production lines of certain parts and subsystems could offer sensible business opportunities.

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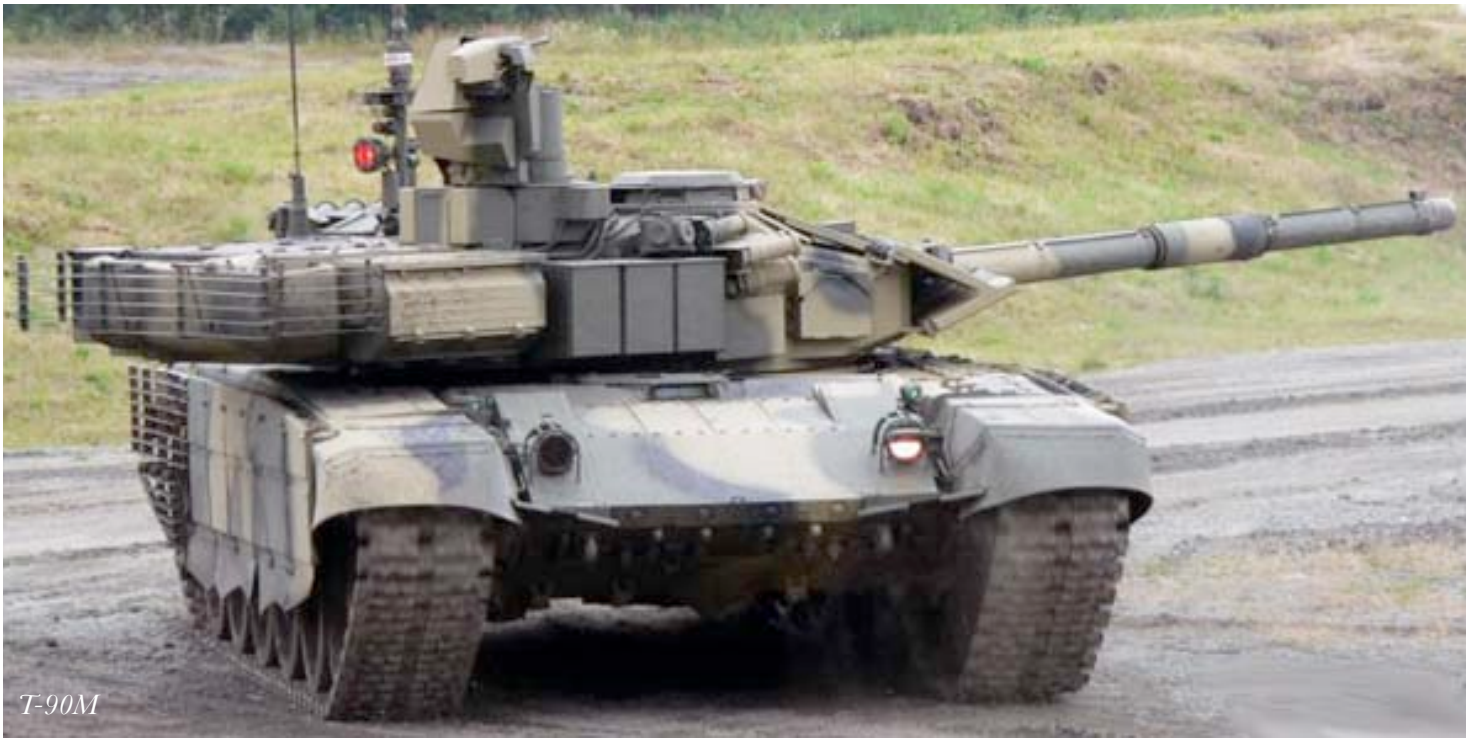
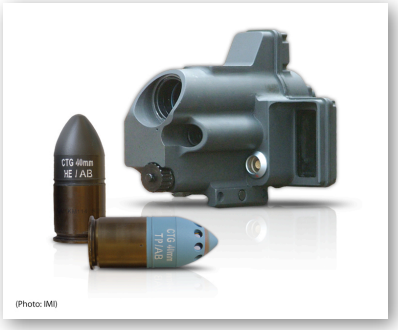

T-90M

Defense Update

Product Watchlist

Elbit Systems (**Hall 6 D 640**) from Israel has won an IDF development contract for a lightweight, low cost remotely operated weapon station. With Israel being the pioneer in remotely operated weapon stations, the new system is bound to become a yardstick for other systems in this category. Technological innovation is not what the IDF required, but a robust, efficient and affordable system enabling large scale fielding without the logistical burden typically involved with such complex systems. Hence, the challenge for the design team is to pack the basic elements in a robust, useful and reliable weapon system to become an integrated part of future combat vehicles.



Grenade Launcher FCS

In development with IMI (**Hall 6 D 709**) for almost a decade, the Multi-Purpose Rifle System (MPRS) is finally maturing to participate in an operational evaluation with the IDF. IMI has developed a compact optronic and ballistic computing fire control system for the rifle, and is offering 40mm programmable grenades with time-delayed fuzing enabling airburst, target penetration or impact blast-fragmentation effect.

GLARE - LIFE SAVING LASERS

B.E. Meyers (**Hall 6 K 659**) is now offering the GLARE laser dazzlers for export. The GLARE is a non-lethal visual disruption or ocular interruption laser, designed to temporarily interfere with a suspect's vision but without causing any ocular damage.

These lasers are proven safe when used in the range and operational guidelines specified for rules of engagement.

GLARE lasers are used by coalition forces for warning and deterring suspects approaching locations or units, as part of the Escalation Of Force (EOF) procedures, to signal an approaching target from a distance, interrupting the target's vision; and finally determining if escalation to lethal force is warranted.

Defense Update

New Trends in Combat Networking

The recent decade emphasized the changes in military operational conduct, from an individual national effort, to an international effort, led by multi-national, joint (multi-service) operation based on complex rules of conduct designed to secure maximum approval and international justification for such forcible military actions.

Such operations pose significant challenges to existing military formations, particularly in command, control, and, especially in the networking and communications, which provides the cement that turns those separate forces into a cohesive military power.

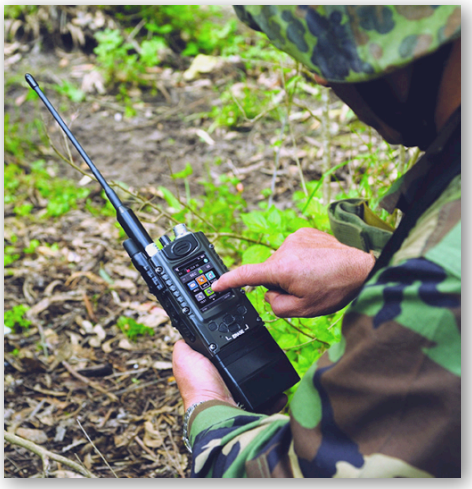
Existing military radios and data communications are designed to serve each military force but rarely support military units of foreign nations. While NATO members are an exception, in having common protocols and standards (STANAG), broader integration of non NATO members in coalitions require opening networks and information systems to other players in ways the military has not previously prepared for. Moreover, rapidly fielding new equipment in Urgent Operational Requirements (UOR) often waives many complex requirements that would slow down the regular acquisition process, resulting in spectrum conflicts, cross-interference and, which, sometime, forces one of the sides to abandon the important equipment to eliminate the problem.

This extensive use of UOR was driven by current military hardware being inflexible to change and adaptation to evolving requirements. The way forward in military communications is the fielding of open systems supporting affordable evolution through their long lifespan.

More insight into each of these programs will be included in Defense-Update Show Live editions. Click here to subscribe.

SDR Offers Flexible Networking

Reflecting this trend at Eurosatory are the modern Software Defined Radios (SDR) that support both legacy communications protocols (waveforms) and new networking solutions, enabling warfighting formations to flexibly and seamlessly establish ad-hoc



networking even in face of severe enemy countermeasures. These digital IP radios commonly support data and voice at relatively high data rates, and can flexibly support combat formations sharing the spectrum in a more sensible way. These modern communications technologies are using self-forming, self-healing, mesh networking techniques (ad-hoc networking) to establish wide area connectivity without relying on a vulnerable central point or human control. To work effectively the military require massive deployment of relatively simple radio units (or nodes), or the integration of these waveforms into more expensive SDR radios, which means additional financial burden.

Mesh networking radios are already maturing in two forms – as small handheld radios replacing the individual soldier radios, offering turnkey but close networking solution, and a waveform supported in modern SDR radios, either handheld, manpack or vehicular, extending ad-hoc communications from the tactical edge through the all the command levels above. With SDR core technology becoming available to radio manufacturers, more providers come out with lightweight gear offering networking for the individual soldier, combat platform and sensor. Different waveforms being deployed in various radio formats (vehicular, man portable and even handheld) are already supporting various applications, from sensor links, tactical data and voice communications, to broadband connectivity supporting commanders and special users. Future applications are also designed to support sensor and weapon embedded systems. With more radios being fielded, military planners are facing the consequences of electromagnetic spectrum overuse with implications on quality of service, cross-interference and vulnerability to cyber attack.

Whatever path the military decides to adopt, it will have to live with this choice for many years to come. Deploying such systems in large numbers means they must remain in service for very long time, therefore becoming less capable to cope with evolving hardware standards.

Defense Update

More insight into each of these programs will be included in Defense-Update Show Live editions. Click here to subscribe.

Militarized Commercial Cellular

To become 'future proof', military networks gradually adapting commercial standards, moving from older proprietary architecture and semi-commercial TETRA protocols which offered limited data transfer capability, to the new WiMAX and 4G/LTE standards that fully support ultra-broadband connectivity. These systems broaden and simplify information flow to and from the battlefield edge, both vertically and horizontally, across combat levels and between piers, delivering secure video, data and voice over wide-band tactical and emerging cellular networks. There are obvious advantages for such applications, in offering 'cloud based services' to the warfighter, enabling tactical users to access applications and critical data and services that were previously beyond their reach, due to constraints in bandwidth, power and security. Special adaptations are preparing such networks to fully support high data and information security, support mobile and airborne users, and integrate terrestrial, commercial infrastructure (fiber) and satellite communications to leverage and extend broadband connectivity to any the access, distance and capacity required by the user.

More insight into each of these programs will be included in Defense-Update Show Live editions. Click here to subscribe.

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