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NEXTER ASCALON: TOWARDS THE FUTURE TANK GUN

By VALERIO DEL GRANDE

Unveiled for the first time in public at Eurosatory, the Ascalon is Nexter's proposal for the main effector that will equip the manned direct fire element of the Main Ground Combat System (MGCS), the Franco-German concept for land warfare composed of different types of platforms, which aims to replace current Main Battle Tanks (MBTs) around 2035. Announced in April 2021 the Ascalon (Autoloaded and SCALable Outperforming guN) is a 140 mm system, which includes both the gun and ammunitions. It leverages the work done in the late 1990s on the Future Tank Main Armament (FTMA) multinational programme, which led to some prototype guns of that same calibre.

The concept has however been completely revised. The new study started from the MGCS High Level Requirements, which are only guidance as no detailed input is yet available on the bi-national programme, which aims to attract other European partners. Some armies have however given a number of indications, one being the effective range that should be "the double of the current range". This would mean around 5,000 meters, definitely beyond line of sight, the average visibility on the battlefield being estimated at 1,500-2,000 meters. For many armies the current benchmark in terms of threat is the Russian T-14 Armata, which fate is uncertain, however the fight between the sword

continue p 3



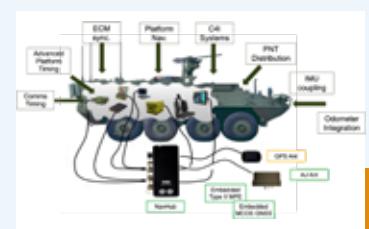
La DPID

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Rheinmetall back in the UAV business

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Hums... No, it's all OK!

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The Army provides a dynamic demonstration

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and the shield has shown how much things can evolve, therefore Nexter decided to choose a solution that ensures a considerable growth potential.

Compared to its competitors, Nexter had an advantage, as it is the only western company to have already produced an MBT whose gun is fitted with an autoloader, the Leclerc, which has been in service for years with the United Arab Emirates and France, the latter having launched a mid-life update for 200 of its tanks. As said, growth potential was a key factor in the company development concept, therefore Nexter decided to considerably increase the chamber volume, while limiting the chamber pressure, which is lower than that of the Leclerc 120 mm gun. Reducing the pressure is also beneficial in terms of barrel wear. The Ascalon design allows transferring to the round, penetrator and sabot, of an APFSDS (Armour Piercing Fin Stabilised Discarding Sabot) to leave the smoothbore barrel with a global energy between 17 and 20 MJ, which on the target, 2,000 meters and less than 1.5 seconds later, would be reduced to 8 to 10 MJ considering the energy loss due to the sabot and to the aerodynamic drag.

One of the key elements in reducing the drag in kinetic energy rounds is the pe-

netrator aspect ratio, which is the ratio between the diameter and the length of the rod. In current 120 mm ammunition, this is between 30 and 35, however Nexter says that in the Ascalon APFSDS round the ratio is higher. Bringing a heavy mass, penetrators are made of tungsten which density is around 2.3 times that of steel, France not considering depleted uranium, at very high speed is the key factor, however physics always impose limits; the vibration regime in the barrel as well as in flight is an issue, but for the time being extreme aspect ratios have not been investigated. The overall length of the gun, rear of the breech to muzzle, is of 7.3 m, its weight being approximately 3,000 kg, which is around 25% less than the current 120 mm L55. This is however not the weight of the gun that can be seen at Eurosatory, which was used for initial firings, as this includes elements of the FTMA prototype and is therefore heavier. Nexter plans to have the full new gun available in 2023 to start further firing tests. Currently the longer barrel on a 120 mm smoothbore gun is the 55 calibre, which measures 6,6 meters; increasing the calibre would not allow keeping a 55 calibre, as it would generate a 7.7 m long barrel, which would give problems in terms of weight, balancing and encumbrance, all factors affecting mobility and accuracy.

The current Ascalon barrel has a length of 50-51 calibres, around 7 meters. Since inception, Nexter started talks with potential turret producers and system integrators, the two armies aiming at an MBT component of the MGCS system that should fall in the Military Load Class 60, so around 55-58 tonnes.

How long will it take to fully develop the MGCS will depend not only on the steps forward in technologies and in the merging of national requirements, but foremost on the political will. To be able to counter an increasing peer opponent threat an interim solution might be the adoption of the new gun on existing platforms, retrofit being a less expensive solution. Moreover this might also bring to a quicker spread of the new calibre, as it will encompass investments compatible with defence budgets of a greater number of countries.

For the time being, all developments have been financed by the company itself. Stepping into Phase 2 of the MGCS programme should bring Nexter and Rheinmetall, which is proposing a 130 mm solution, at the same table, giving way to a holistic study that would take in count all the results obtained with tests undergone so far, bringing to a solution that might even bring to a calibre that differs from the two proposed until now. ■



Forte de sa présence dans l'opération Barkhane au Sahel ou encore sur la COP21 à Paris, Aimimpact a décidé de développer plus avant ses activités dans le domaine de la défense en identifiant et en agrégeant les dernières technologies ISR (intelligence surveillance reconnaissance) pour la protection des frontières, des infrastructures critiques et des grands événements. Avec en point de mire les prochains JO de Paris en 2024 pour lesquels l'aspect sûreté autour de la Seine sera essentiel.

BIEN GÉRER LA SÉCURITÉ AUX FRONTIÈRES ET AILLEURS

By JEAN-MICHEL GUHL

HALL
5B
STAND
D 330

Ainsi **Aimimpact** présente pour la première fois son pack ISR qui agrège les ballons captifs RT reconnus internationalement avec une nouvelle caméra très longue portée développée par Key Technologies. Ce pack de surveillance stabilisée à 360° sur trois axes à refroidissement actif apporte une réponse performante à un prix horaire très compétitif (moins de 200 euros de l'heure) versus d'autres solutions aujourd'hui utilisées qui ont un prix d'exploitation horaire considérablement supérieur sans pour autant apporter une surveillance en continu.

Atout compétitif : **Aimimpact** opère déjà sur le territoire national et agrégera les ballons avec des boules optiques de fabrication française. L'entreprise assurera la formation et la maintenance depuis le sol français. Au fur et à mesure de son développement, c'est la production qui sera également opérée en France. ■

OTHELLO-P: AN OPTO-ACOUSTIC GUNFIRE DETECTION SYSTEM BY IAI

By VALERIO DEL GRANDE

HALL
H 5A
STAND
J 801



Knowing with good accuracy the source of gunfire is key to first survive and then retaliate. Israel Aerospace Industries had already an optic gunfire detection system in its portfolio, however always looking for improvements, and exploiting new and fresh ideas coming from the company recently established Innovation Centre, the system has evolved adding acoustic sensors to optical ones, giving birth to the Othello-P.

Fusing the two technologies enhancing the identification and classification accuracy of hostile targets. Mostly dedicated to armoured vehicles, the lightweight system has however also be developed in a man-pack version aimed at infantry and Special Forces formations.

Fully passive, the vehicle configuration is based on two sensor modules, each covering 180°; this allows more flexibility when integrating the Othello-P on

the vehicle, allowing to avoid obstacles on the vehicle roof such as for example remotely controlled weapon stations.

According to IAI the system takes the best of each category of sensors, fusing the results; three types of event are noticed by the Othello-P, the flash generated by a weapon firing, the blast at the barrel, and the shockwave should the round pass close to the vehicle. The system is capable to work in noisy environments, typi-

cal of the battlefield and even more of urban scenarios, where echoes must also be discriminated. The Othello-P can provide warning and identify the source of small arms fire, down to pistols and up to medium calibre cannons, and RPGs. Interfaced with a battle management system, it can provide situational awareness to the whole formation and eventually should the fire be too heavy for the unit on the ground, allow the upper echelons to take action. ■

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EMMANUEL MACRON APPELLE AU RENFORCEMENT DE L'INDUSTRIE DE DÉFENSE EUROPÉENNE

Le chef de l'Etat, qui a inauguré le salon Eurosatory lundi matin, a plaidé en faveur d'une industrie de défense européenne "beaucoup plus forte" dans un contexte géopolitique marqué par la guerre en Ukraine.



Il a souhaité tenir pendant une vingtaine de minutes un discours de "franchise et de sincérité", avant de déambuler dans les allées du salon qu'il a inauguré. Lundi 13 juin, en fin de matinée, Emmanuel Macron a appelé à "aller plus loin dans notre destin partagé européen" et a souhaité développer davantage de "projets communs". "Nous avons besoin de renforcer une industrie et une base industrielle et technologique de défense européenne beaucoup plus forte et beaucoup plus exigeante", a déclaré le chef de l'Etat, en réitérant un appel déjà lancé dès son arrivée à l'Elysée en 2017. "Sinon", a poursuivi le président de la République, "nous construirons les dépendances de demain".

Selon Emmanuel Macron, qui a défendu la "mise en place d'une préférence européenne" en matière d'achats d'armement, une stratégie industrielle d'innovation européenne serait "bonne pour nos industriels, bonne pour nos emplois et bonne pour notre souveraineté stratégique (...). Bâtissons ce socle de souveraineté, d'indépendance européenne, française si on le peut - avec des partenariats que je souhaite à travers le monde et je vois beaucoup de

non européens ici - mais j'aime construire les partenariats que je choisis, j'aime moins les dépendances que nous avons massivement et méthodiquement parfois préparées", a lancé le chef de l'Etat.

"Ne repartons pas de l'avant pour reproduire les erreurs du passé, dépenser beaucoup pour acheter ailleurs n'est pas une bonne idée", a-t-il estimé, alors que de nombreux pays européens ont annoncé leur volonté d'augmenter leurs budgets de défense. "Je sais combien le matériel français est en avance, le succès que vous rencontrez à l'export en est la preuve éclatante", s'est par ailleurs réjoui le président de la République.

LA FRANCE EST "ENTRÉE DANS UNE ÉCONOMIE DE GUERRE"

Emmanuel Macron a rappelé que le conflit en Ukraine, "une

guerre de haute intensité" qui a commencé le 24 février dernier, bouleversait le secteur de la défense, en entraînant des besoins militaires accrus. "Nous sommes à la veille de transformations profondes", a-t-il affirmé, soulignant que la France est "entrée dans une économie de guerre dans laquelle nous allons durablement nous organiser". "Notre monde est en désordre", a-t-il insisté, appelant à "être plus fort pour tenir la paix, pour tenir l'Europe et pour tenir la France".

"Il nous reste beaucoup à faire pour nous adapter aux transformations profondes que nous sommes en train de vivre. Et pour qui douterait de l'urgence de ces efforts, il suffit de regarder une fois encore, vers l'Ukraine, dont les soldats réclament un armement de qualité et qui sont en droit d'avoir une réponse là aussi de notre part", a relaté Emmanuel Macron. "Nous prendrons les décisions des investissements et nous aurons les exigences qui vont avec", a-t-il également dit.

Sur fond de guerre en Ukraine, et pour "ajuster les moyens aux menaces", Emmanuel Macron a annoncé lundi son souhait de réévaluer la loi de programmation militaire (LPM) 2019-2025 : "J'ai demandé au ministre (des Armées) et au chef d'état-major des Armées de pouvoir mener dans les semaines qui viennent une réévaluation de cette loi de programmation militaire à l'aune du contexte géopolitique."

Emmanuel Macron a amorcé en 2017 une nette remontée en puissance des crédits défense. Le budget du ministère des Armées va

de nouveau croître en 2022, à 40,9 milliards d'euros, conformément à la LPM 2019-2025 qui prévoit d'atteindre 50 milliards d'euros en 2025.

EUROSATORY, UN "SYMBOLE DE NOTRE AMBITION STRATÉGIQUE"

"Nous n'avons pas attendu les changements stratégiques pour réinvestir", a rappelé le chef de l'Etat, même si la montée des menaces fait peser une "exigence supplémentaire pour aller plus vite, plus fort, au moindre coût".

Autre enjeu mis en avant par Emmanuel Macron : l'environnement. La défense est selon lui "un secteur d'avenir parce qu'il a fait sien ces enjeux considérables de la croissance durable", en s'adaptant progressivement. Il a renvoyé dos à dos aussi bien un "modèle de défense qui ferait fi de l'éologie" qu'un "modèle où l'Europe se mettrait aux avant-postes des questions environnementales pour y sacrifier sa base industrielle et de défense".

Emmanuel Macron s'est par ailleurs félicité de la tenue de l'édition 2022 d'Eurosatory, qui regroupe au total 1700 exposants issus de 62 pays. "Malgré les difficultés de la pandémie, vous avez réussi à monter cet événement, sans équivalent ou presque dans le monde, qui n'avait pas eu lieu depuis 2018", a-t-il rappelé. "Eurosatory est bien plus qu'un laboratoire d'innovation militaire (...) C'est un symbole de notre ambition stratégique, c'est une condition de notre souveraineté nationale, c'est une conception de notre souveraineté européenne." ■



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LIGHTING THE NIGHT AND HIDING FRIENDLY FORCES: NEW ARTILLERY MUNITIONS FROM NEXTER ARROWTECH

By VALERIO DEL GRANDE

Nexter Arrowtech is completing its portfolio of artillery munitions purposely developed to maximise the performances of 155/52 mm artillery howitzers, first of all those of the Caesar truck-mounted system in service with France. Currently available illuminating and smoke munitions are still those designed for 39 calibre ordnance. Three new rounds are therefore in the pipeline, all based on the M864 cargo shell shape, which ensures a 35 km range in the Base Bleed configuration. The first one,

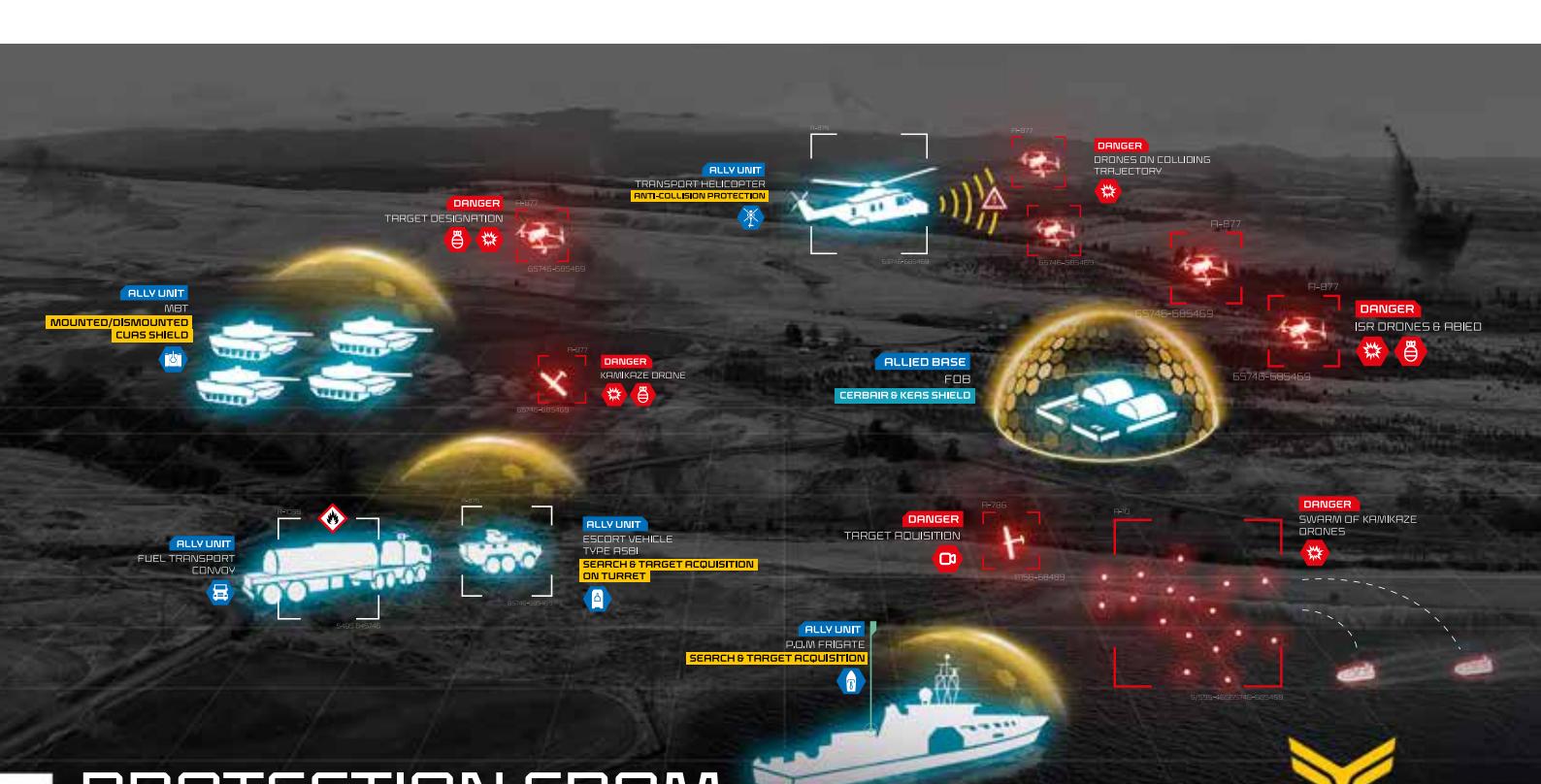
the LU 215 illuminating round, is already in service with the Armée de Terre and works in the visible spectrum. It has an intensity of 1.2 million Candela (+20% over previous generation rounds), persistency being 80 seconds (+74%), the illuminated surface being doubled, at 400 meters radius. With a weight of 44.7 kg and 898 mm long, two batches were delivered, a third being expected by year-end.

Next comes the LU 217 MS-SM; the French Army needed a longer range smoke round

loaded with red phosphorus, white phosphorus being banned for its incendiary and toxic properties. Containing six canisters, it allows screening an 80-100 meters radius zone for 120-150 seconds in the visible and IR spectrum. Industry qualified in December 2020, it is under qualification by the DGA, first deliveries being expected in late 2023.

Back illumination, the LU 216 IR Illum is badly needed by the forces, that will get the first batch of infrared illuminating rounds in late 2024-early 2025. ■

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LEONARDO'S VULCANO 155 GUIDED AMMUNITION FIRED FROM FRENCH CAESAR

By VALERIO DEL GRANDE

Already tested on various artillery systems, first of all the PzH 2000 in service with both the German and Italian armies, Leonardo's Vulcano 155 GLR (Guided Long Range) ammunition was tested in May on Caesar 155/52 self-propelled howitzer, the wheeled self-propelled artillery howitzer developed by Nexter of France. According to available information the Vulcano ammunition confirmed its effective-

nness and accuracy in reaching long and challenging distances and proved their compatibility with another of the in service 155mm howitzers.

Conceived and realized to operate with high accuracy against stationary and moving point targets, Leonardo's Vulcano guided ammunition is able to reach a range up to 70 km with metric precision thanks to its aerodynamics and GPS guidance. The guided

configuration is equipped with a radio frequency fuze allowing altimetric, instantaneous impact and delayed impact modes. The Vulcano ammunition is also available with a Semi Active Laser (SAL) sensor, which allows engaging stationary or moving laser designated targets, with an even improved precision compared to pure GPS guidance. In the same firing session the 155mm HE ME465 projectile, designed and manufactured



HALL
6
STAND
D 301

by MES-Italy has been successfully fired by other howitzers, with no more details being provided. The firing test confirmed the performances of the ME465 round in terms of range, 24 Km, as well as its higher terminal effect compared with those of the M107 shell, this improvement being due to the 11 Kg of High Explosive contained in the ammunition. The 155mm HE ME465 is in service with NATO Armed Forces. ■

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IVECO DEFENCE VEHICLES: MTV TEST VEHICLES CLOSE TO DELIVERY

By VALERIO DEL GRANDE

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B 430



First time Eurosatory presence for the IDV Medium Tactical Vehicle (MTV). Designed to answer a Dutch MoD requirement, IDV signed the contract for what is known in the Netherlands as 12kN in November 2019. In fact, the expected payload of 12,000 N, 1,224 kg, was largely exceeded and is now 2,000 kg, for a kerb weight of 10 tonnes. Powered by a 276 hp engine, it features a ladder chassis with leaf spring suspensions

with dampers and antiroll bars. Industry trials are being concluded, and were carried out in accordance with the customer, many of them, such as ballistic tests, having been carried out in the Netherlands at the TNO, which was part of the offset programme.

The first vehicle to be delivered next fall will be a Hard Top, like the one on exhibition, two slightly different versions of this type being planned, one

for the Army and one for the Marines, the Soft Top version to be delivered by late 2022, early 2023. In 2023 IDV will deliver around 100 vehicles, the remaining vehicles to be delivered 200 per year until 2027. According to IDV the vehicle, which is being developed also in the Pick-Up and Monocoque versions, has a considerable growth margin and has already attracted the interest of numerous potential customers in Eastern Europe, the

Balkans and in the south Mediterranean.

While Eurosatory will allow IDV to discuss the MTV with numerous delegations, the true commercial campaign will start in 2023, when the company will have available the demonstration vehicle, to be completed by year end, and will be able to deploy it for customers trials. ■

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HORNET AIR GUARDIAN AGAINST UAS

By VALERIO DEL GRANDE

Still at concept stage, it has however already a name: Hornet Air Guardian. Its task will be to provide good coverage against one of the emerging threats on the field, UAS, while maintaining at the same time a self-defence capability against ground targets, all that at a weight well compatible with light armoured vehicles, as well as logistic vehicles such as trucks, convoys being a target of choice for UAS and their more aggressive cousins, Loitering Munitions. Instead of grenade launchers, the independent revolving crown is fitted with a radar and with an RF system, which ensure UAS detection and tracking,

the effector being an H&K GMG 40 mm automatic grenade launcher AGM capable to fire Rheinmetall 40x53 mm airburst munitions which fragment would neutralise the UAS. The radar antenna covering a 90° sector, the operator can choose to monitor only the main threat area, or exploit the turret movement to cover a wider area. While the radar provider remains for the time being undisclosed, the RF detection system is provided by Cerbair which purposely developed a solution for the Hornet Air Guardian. The use of an AGM with airburst munitions allows creating a barrier of pellets in front of the UAS, however the warhead



maintains also a capability to engage not only infantry in the open but also vehicles, when used in impact mode, ensuring self-defence against different types of threat. Adding one or more vehicles equipped with the Hornet Air Guardian would provide good protection against UAS while not reducing firepower

against ground targets. The system is being presented in mock-up form on the Hornet stand as it is still in development. ■

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The takeover over of EMT Ingenieurgesellschaft Dipl.-Ing. Hartmut Euer mbH (EMT), a Bavaria-based company specialised in unmanned air vehicles, at the turn of the year 2020/2021, marked the come back of Rheinmetall in the UAV business.

RHEINMETALL BACK IN THE UAV BUSINESS

By VALERIO DEL GRANDE

Beside the Aladin and the Luna, both in service with the German Armed Forces, which Rheinmetall will upgrade. At Eurosatory, the Düsseldorf-based company debuts the Luna NG, for Next Generation, a bigger air vehicle that is about to be adopted by Germany to improve the Army reconnaissance capability. The Luna NG, dubbed Husar by the Bundeswehr, has a 30 kg payload and can fly for over 12 hours carrying out not only reconnaissance, classification and recognition, thanks to its optronic high-resolution sensor package, but also other tasks thanks to the flexible payload that can be installed. The Luna NG is fitted with a datalink with a range of 150 km, however it can be equipped with a SATCOM system further increasing its operational range.

It is launched by catapult and recovered either by net or by parachute.

The Luna NG is part of the armed forces digitisation effort of which Rheinmetall is one of the main actors. In perspective, Artificial Intelligence-based modules might be added, allowing for example automated recognition and data evaluation.

Beside the Luna NG development, Rheinmetall is expanding its activities in the UAS domain, integrating unmanned flying assets into armoured vehicles, to provide standoff situational awareness that can be shared with the other components of the unit through the network. Some land platforms exhibited at Eurosatory are exploiting synergies with UAVs. ■

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BANS TACTICAL DECEPTION AIR DEFENCE LEAVES AIRCRAFT UNDEFENDED

By VALERIO DEL GRANDE

Air defence missiles come in relative small numbers and are pretty expensive; military aircraft, either fix or rotary wing, combat or transport, are nowadays nearly all fitted with self-defence suites that include sensors and effectors, the latter usually in the form of flares to cope with IR-homing missiles. Shooting a VSHORAD missile against a target with its flare magazines still full might mean spending a costly weapon for nothing, as flares can well defeat the incoming threat bringing it away from the target.

HALL
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K 197



Carbotek, a spinoff company of Slovenian Guardiaris, developed a non-lethal weapon that adopts a quite revolutionary approach to air defence. Why not stimulating the attacking aircraft with a low-cost system, obliging it to spend a good part of its flares for nothing. On the receiving end, what pilot would risk his life not reacting to a threat, assuming it is a fake?

Not many details were provided, surprise being of course key in this type of cat-and-mouse game, but the system called BANS, for Battlefield Anti-aircraft Non-lethal (VSHORAD) System, is defined as a light shoulder weapon. It looks like a small rocket launcher, the operator needing only to aim towards the incoming aircraft and squeeze the trigger. Battery powered, this ensures up to 500 simulated engagements.

Considering its size and weight as well as its relative cost, it can be distributed in numbers on the battlefield, considerably reducing enemy aircraft defensive capacity. Obvious users for the BAMS are air defence units, which can put up coordinate deception plans using their C2 system, stripping the enemy aviation of its defensive capabilities before launching the actual missile, which probability of kill will then be considerably increased. ■



R&S UNVEILS A NEW OUTDOOR MONITORING SYSTEM, SOFTWARE SUITE AND RADIOLOCATION SOLUTIONS

By LUCA PERUZZI

Rohde & Schwarz (R&S) unveils at Eurosatory 2022 the innovative UMS400 lightweight universal monitoring system, the intuitive CEPTOR radio-monitoring software and new direction finding and monitoring antennas.

The ever-increasing frequency range of wireless communications services calls for monitoring stations up to 8 GHz, in some cases even up to 20 GHz. Typically, this requires a monitoring sensor installed close to the antenna(s) in order to keep cable losses as low as possible for highest sensitivity. To

meet these requirements, Rohde & Schwarz developed the UMS400 lightweight universal spectrum monitoring and radiolocation system, covering the 8 kHz to 8 GHz (extendable up to 20 GHz with the R&S CS-MC20 microwave downconverter) frequency range and featuring a compact outdoor housing with excellent size, weight and power (SWaP) characteristics.

Its superior spectrum performance brings great value to advanced COMINT platform systems. The UMS400 is vital

to obtain actionable intelligence for situational awareness, and contributes to larger multi sensor intelligence, surveillance and reconnaissance (ISR) missions, force protection during tactical operations, and small-scale emitter hunting operations.

The new R&S CEPTOR software controls radio-monitoring systems such as the UMS400 for situational awareness in constantly changing communications environments. The intuitive and clearly structured interface guides

users through typical workflows. Tasks are performed quickly and effectively, and practical default settings and automated steps provide support and deliver the desired results without users having to worry about the specific characteristics of each sensor.

R&S also unveils the new multi-channel R&S ADD557SR and single-channel R&S ADD597 monitoring and direction-finding antenna systems, which deliver reliable measurement results even in dense spectrum environments. ■

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LOCKHEED MARTIN DEMONSTRATES SKYKEEPER

By GILES EBBUTT

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G 850



At Eurosatory Lockheed Martin Corporation is showcasing its UK-developed SkyKeeper ground based air defence (GBAD) and battle management command, control, communications, computers and intelligence (BMC4I) capability, and has a full demonstration of the system's software on display.

According to Lockheed Martin UK the largely ITAR-free SkyKeeper system can "integrate multiple organic and non-organic sensors and effectors into a universal networked BMC4I system for GBAD, counter-unmanned aircraft systems (C-UAS) and counter-rocket, artillery and mortar (C-RAM), whilst also acting as a 'funnel' for digital data link (DDL) transmitted information that may include both specific tactical air picture information and/or wider ISTAR information."

SkyKeeper uses a publish and subscribe open architecture, using the data distribution service (DDS) middleware and the GBAD network mes-

sage set (NMS) to achieve connectivity and interoperability between sub systems, with gateways embedded as required to external services.

Richard Turner, GBAD business development manager at Lockheed Martin UK (LMUK), said that SkyKeeper is scalable and can be tailored in size and form factor according to the customer requirement. "Although it is currently focused on use in the land domain it is a real multi-domain integration enabler because it is a fully networked system with the capability to connect sensors, effectors and wider C2 systems" he said.

He added that the key to this is the ability of the system to exchange information in near real time over commonly used datalinks such as Link 16, Variable Message Format (VMF) and the Joint Range Extension Applications Protocol – C (JREAP-C).

Turner also noted that SkyKeeper is a flexible and

cost effective system which can be utilised across the range of AD tasks but can also evolve to meet new and emerging threats, incorporate new technology or match customer budgets.

SkyKeeper forms the basis of the upgrade to the British Army's Land Environment Air Picture Provision (LEAPP) capability, for which LMUK was awarded a GBP20 million contract in December 2021. Turner noted that this is the first operational customer for SkyKeeper.

Integrated with the Saab Giraffe Agile Multi-Beam (G-AMB) 3D surveillance radar LEAPP provides a recognised air picture into formation headquarters. The LEAPP system was recently used in a surveillance capability at the G7 2021 Summit in Cornwall and the COP 26 Summit in Glasgow, and has been deployed overseas on numerous occasions.

Turner also said that LM had partnered with IAI and Elta

to offer a complete medium range air defence (MRAD) solution, integrating the IAI Barak family of effectors and an ELTA multi-mode radar with SkyKeeper. "With this solution we are actively pursuing an opportunity with a key US/UK ally that is outside NATO" he said, although he was unable to be more specific.

The integration work involved in this project is proving SkyKeeper as an MRAD battle manager for a specific sensor/effector mix, but Turner emphasised that the system can also exchange data with additional external sensors or could also incorporate short range AD or CUAS sensors and effectors.

At Eurosatory Lockheed Martin is also showcasing its capabilities in integrated air and missile defence, battlespace management, precision fires and multi-domain operations. ■



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SCAN ME

EODH TO INTRODUCE NEW DEVELOPMENTS IN ARMOURED PROTECTION

By MARC CHASSILLAN

With over 18 years of battled proven track record, Greek company EODH S.A., based in Lak-koma, Halkidiki, has become one of the preferred partners in the LEO 2A7 and Boxer 8x8 production as well as in other modern IFV. EODH is heavily investing in a new 5000 m² plant to support the development, design and manufacturing of all types of protection technologies and systems, with activities in Greece, Europe and the Middle East.

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EODH presents for the first time the heavy version of the advanced protection system «ASPIS Modular NG - MBT» (ASPIS - Advanced Shielding Platform Integrated System), installed on a Leopard 2A4 turret and designed as a complete hybrid solution that combines passive and active protection elements in the frontal arc to cope with modern threats such as tandem warhead ATGMs and the new generation of

long-rod APFSDS rounds. ASPIS technology is multi-hit capable, and a damaged armor module can be replaced in the battlefield by the crew. The solution proposed by EODH can be applied as an upgrade of existing MBTs or integrated into new designs and it meets the new challenges posed by attack drones, loitering ammunitions, and the new fire-and-forget top-attack ATGM with parabolic trajectory. It uses stand-alone millimeter-wave radar sensors, distributed on the roof of the turret that detect incoming threats approaching the roof from high elevation angles, and, at the appropriate time, triggers directed explosion charges that neutralize the threat.

EODH also presents the new high mobility armored vehicle 4x4 «Hoplite» which incorporates many innovations and provides an excellent balance between the mobility and the protection. EODH and its partners developed Hoplite with modular design, suitable to cover a wide range of military and internal security missions. The main goal of the new design is to create a basic platform with a maximum gross weight of 12 tons with a payload of 2 tons.

The well-known KMW 4x4 Dingo II with the protection upgrade package ASPIS D-Force is also exhibited at the EODH booth. EODH is exhibiting a mock-up of a light and a medium combat vehicle with ASPIS. Moreover, EODH presents the special anti-mine protection design, combined with anti-shock seats that are supported by innovative brackets that absorb a huge part of the blast energy. In addition, the advanced roof shield is designed to provide protection against fragments from time-fused artillery shells, shaped charge bomblets, and attacks from light AT launchers fired from the top. ■

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LA DPID, TÊTE DE CHAÎNE DÉFENSE SÉCURITÉ DU MINISTÈRE DES ARMÉES

Par JULIEN CHABROUT



**Interview avec
le Vice-amiral
François Moreau,
Haut fonctionnaire
correspondant de défense et
de sécurité (HFDDS) adjoint
et Directeur de la protection
des installations, moyens et
activités de la défense (DPID)**

Quelles sont les missions de la Direction de la Protection des Installations, moyens et activités de la Défense (DPID) ?

La DPID est le service du Haut fonctionnaire de la Défense et de Sécurité (HFDS) du ministère des Armées. Elle a en charge l'élaboration de la politique de protection des sites, des systèmes d'information, des personnels, du secret et des entreprises de défense. La DPID a été créée en 2015 à la suite d'incidents sur des sites sensibles. Avec une véritable volonté de l'Etat que les sujets de défense et de sécurité soient pris en compte au meilleur niveau. Bien que le ministère des Armées ait par essence une culture de défense et de sécurité, il y avait malgré tout à l'époque le besoin d'orienter et de mettre en cohérence l'ensemble de ces politiques.

Notre première mission est de protéger l'ensemble des moyens du ministère des Armées afin qu'il puisse remplir sa mission de défense nationale. Il s'agit de conserver notre liberté d'action, de ne pas se retrouver un jour dans une position où nous serions empêchés de pouvoir agir.

A cette fin, nous nous assurons en particulier de la cohérence du

niveau de la protection au sein du ministère. Nous ne sommes pas un organisme de contrôle, nous sommes là pour aider et pour accompagner. Nous exploitons à des fins de retour d'expérience les événements de défense sécurité, par exemple les tentatives d'intrusion sur des sites sensibles et les survols de drones, ou encore les agressions sur des militaires. Nous suivons cela tous les jours et nous avons un point hebdomadaire avec le chef de cabinet militaire qui est également Haut fonctionnaire de défense et sécurité. Nous faisons un état des lieux des menaces, nous les observons, nous croisons avec les incidents et nous en déduisons les ajustements de notre politique de protection. Enfin, nous étudions les moyens de protection nécessaires pour soutenir cette politique de protection.

Nous avons des liens forts avec la communauté du renseignement. Nous sommes notamment en contact étroit avec la Direction du Renseignement et de la Sécurité de la Défense (DRSD) qui est en particulier chargée de la contre-ingérence. Nous échangeons très régulièrement, la DRSD apportant des remontées du terrain afin d'adapter nos outils. Je me déplace également régulièrement pour voir les sites sur place, car rien ne remplace le contact de terrain.

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La sécurité numérique est un sujet de plus en plus présent dans l'exercice de vos missions...

La notion de sécurité numérique est venue s'ajouter récemment dans nos missions, c'est une évolution importante. Je suis chargé de mettre en place la politique du ministère, d'orienter avec les acteurs du numérique les choix et la manière dont nous allons nous protéger vis-à-vis des menaces liées à la confrontation numérique permanente. La DPID exerce désormais la fonction d'autorité ministérielle de sécurité numérique. La sécurité numérique relevait auparavant de la Direction Générale du Numérique et des systèmes d'information et de communication (DGNUM). Il était utile de bien séparer les deux notions de numérisation et de sécurisation, et de l'intégrer à la DPID, car ces sujets de sécurité numérique sont complètement transverses aux enjeux de défense et sécurité.

Nous avons intégré sept personnes supplémentaires dans nos effectifs pour travailler sur les sujets de sécurité numérique. L'une des principales caractéristiques de la DPID, c'est le petit nombre de personnes qui y travaille (32). Nous nous appuyons sur la culture défense et sécurité du ministère des Armées et travaillons en recherchant une grande subsidiarité.

L'interministériel est-il une préoccupation majeure ?

Cette question occupe une bonne partie de mon temps. Le ministère des Armées n'évolue pas dans une bulle et l'une de mes préoccupations importantes est de faire prendre en compte nos enjeux par le monde interministériel, grâce à l'action du Secrétariat Général de la Défense et de la Sécurité Nationale (SGDSN). Le ministère est en effet en permanence en lien avec d'autres organismes ministériels, par exemple avec le ministère de la Transformation écologique, avec le ministère de l'Intérieur ou encore avec le ministère de l'Enseignement supérieur et de la Recherche pour des sujets liés à la protection du secret de la défense nationale, qui est une vraie préoccupation, ou de protection de notre patrimoine scientifique et technique. Il est très important de m'assurer que, non seulement le périmètre ministériel est bien protégé, mais également que le niveau de protection dans l'écosystème dans lequel il évolue est bien en cohérence.

Quels sont les liens entre la DPID et des entreprises de l'armement ?

Il y a un volet es fonction qui veut que nous travaillons sur la bonne protection des entreprises et des systèmes d'informations de l'industrie de défense de façon à préserver l'efficacité opérationnelle globale. Nous le faisons avec l'appui de la Direction Générale de l'Armement (DGA) et plus particulièrement son service en charge de la sécurité. Le dialogue est très facile car la DGA est très bien organisée et a une vraie culture dans ce domaine. Nous vérifions en outre que nos industriels sont capables de poursuivre leurs activités au niveau requis face à un événement.

Au-delà nous soutenons auprès de la chaîne capacitaire du ministère les projets industriels qui peuvent contribuer à améliorer la protection.

Que représente pour vous le salon Eurosatory ? En quoi est-ce important pour la DPID d'être présent ?

Ces salons sont l'occasion de faire un tour d'horizon en l'espace d'une journée. Nous pouvons rencontrer des acteurs, échanger avec eux d'une manière efficace et leur faire passer des messages. C'est un évènement très utile pour cela. C'est aussi l'occasion de pouvoir chercher des pépites que je vais pousser et mettre en avant. Un exemple : lors d'un salon précédent, nous avons rencontré une entreprise capable de faire du pistage de microdrones à partir de caméras de surveillance. Nous n'avions pas pensé à ça.

Qu'est-ce que la guerre en Ukraine a changé dans l'exercice de vos missions ?

Le déclenchement de la guerre nous a amené à faire une revue du niveau de protection du ministère des Armées et à remonter le seuil de vigilance. Ce conflit est une préoccupation permanente, mais je ne dirai pas que c'est une préoccupation au quotidien pour la DPID.

La guerre en Ukraine vient en tout cas confirmer, si besoin était, la fin de la parenthèse stratégique qui avait suivi la chute du mur de Berlin et qui a pu un temps nous laisser penser que le niveau de menace sur nos emprises allait diminuer. Elle vient également confirmer les orientations prises par la DPID dès sa création. Nous devons en effet être en mesure de faire face à l'action potentielle de services étrangers sur notre territoire, il faut donc s'en protéger.

Quels sont les enjeux majeurs qui devraient se poser de plus en plus à l'avenir ?

La menace est bien présente, comme l'illustre malheureusement cette guerre. Il s'agit de répondre à cette montée en puissance de la menace en adoptant une réponse au juste coût. Au sein du ministère des Armées, nous avons un très grand nombre de sites qui n'ont pas tous la même sensibilité. On ne protège pas une installation nucléaire comme on protège un centre d'archives par exemple. Il est important de disposer d'une palette d'outils qui permet de répondre à ce très large éventail. En résumé, nous protégeons tous les lieux d'une manière adaptée au risque et au juste coût.

Il faut par ailleurs se préparer aux menaces de demain sur le numérique, sur la robotisation, la dronisation et la miniaturisation. Ces menaces nous posent pas mal de défis. Il est important que les industriels l'aient en tête.

Enfin, l'innovation est pour nous un sujet majeur. Il s'agit d'une part de comprendre comment l'adversaire innove, comment il peut exploiter les innovations pour nous menacer et évidemment y répondre. Il s'agit aussi d'innover dans notre protection pour l'inciter à renoncer. Dans un monde où la technologie évolue très vite, il est important de trouver une organisation et une manière de répondre aux besoins de défense et de sécurité très rapidement. ■

Vice-amiral François Moreau

Haut fonctionnaire correspondant de défense et de sécurité (HFCDS) adjoint
et
Directeur de la protection des installations, moyens et activités de la défense (DPID)

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IXBLUE'S ADVANS SERIES INERTIAL NAVIGATION SYSTEMS SELECTED TO EQUIP THE SPANISH ARMY'S VCR 8X8 DRAGÓN

By ELISABETH GOSELIN-MALO



HALL
6
STAND
J137

In November 2021, iXblue, the global provider of innovative solutions for navigation and photonics, alongside its Spanish representative GRAFINTA, were awarded a contract with GMV to equip the Spanish Army's 8x8 VCR Dragón. More specifically, the contract oversaw the delivery of more than 240 Advans Series inertial navigation systems including the Ursa U5 and Vega V5, with the first ones recently delivered in early 2022.

also points to their growing partnership and the increasing footprint of the company where iXblue now operates in more than 60 countries. GMV will be integrating the company's systems as part of the global frigate navigation system. ■

NEED TO RAISE A HEAVY RADAR OR OBSERVATION SYSTEM: OMP LTS IS YOUR CHOICE

By VALERIO DEL GRANDE

Originally designed and manufactured in the United States by Tower Solutions, since 2019 OMP of Italy reached an agreement with the original US manufacturer of the Large Tower System, LTS in short, to adapt it to European safety rules, and to produce and distribute it worldwide, with the exception of the US.

Compared to telescopic masts, whose diameter is reduced due to its height, the LTS reaches a height up to 24 m, its reticular modules maintaining always the same dimensions. An automatic system stacks one module over the other, maximum height being reached in less than 5 minutes. This architecture allows to carry

much heavier payloads, up to 900 kg, and bearing much stronger winds compared to standard systems.

The LTS is in service with the Italian Air Force that uses it for deploying radars and drone data link systems. OMP is also partnering with Leonardo to propose the LTS as a GSE for the Xplorer Drone programme.

In the US the LST is part of the PTM-130 tower system, originally developed for the US Army "Gray Eagle" programme centred on the Predator drone, and was purposely made to fit into a C130 aircraft for easy deployment. Here the LTS tower module is integrated into a corrosion



resistant trailer transport frame specially designed to transmit and endure the high loads and moments transferred to the trailer by a tower mast subjected to the forces of wind and weight of gravity. Air transport is supported by US Air Force ATTIA (Air Transportation Test Loading Activity) and by Italian Air Force certification. ■

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HENSOLDT FUTURE IN THE LAND DOMAIN: INTERVIEW WITH THOMAS MUELLER, CEO HENSOLDT AG

By LUCA PERUZZI



Mr Mueller, Hensoldt has developed into Europe's largest platform-independent sensor provider. Where do you currently stand in an international industry comparison?

We are already one of the European technology leaders for defence and security solutions. Of course, we have the ambition to expand this position step by step. This is not just about volume, but above all about technology leadership in our core sensor business, but also innovative offerings in future areas such as AI, cyber and big data. Here we supply critical technologies that are of high importance for the sovereignty of Europe. The participation of the German government and Leonardo underline our importance in the European security and defence industry.

Germany and many other Western states deliver weapons to Ukraine. Is Hensoldt involved in this?

Hensoldt has the necessary key technologies and fully supports the efforts of the German Federal Government in order to meet the required needs as quickly as possible. Among other things, we have sent the Ministry of Defense and the BAAINBw proposals for new products available immediately and in the short to medium

term as well as proposals for additional spare part deliveries and maintenance services. We are prepared to rapidly increase the production rate, especially for systems that have already been introduced in the Bundeswehr. Should further production capacities become necessary, we can also draw on the worldwide manufacturing network in the Hensoldt Group. However, it is clear that the German Government has the lead in this effort.

European armed forces have identified a backlog demand for modern equipment in many areas. Where do you see particular opportunities for Hensoldt?

In addition to radars and optoelectronics, Spectrum Dominance - that is, everything related to the control of the electromagnetic and cyber spectrum - is a core business of Hensoldt. In addition, we can contribute special skills in the field of sensor fusion. Both are essential for the successful deployment of our armed forces, for their protection against attacks and also for air defence. The conflict in Ukraine has once again highlighted the importance of controlling the electromagnetic spectrum and using networked sensors. These capabilities are also essential for future European cooperation pro-

grammes such as the Future Combat Air System (FCAS) or the Main Ground Combat System (MGCS).

Where do you see your role in MGCS?

MGCS uses all the technologies currently available and under development: optoelectric periscopes and cameras, short- and long-range radars, self-protection sensors and jammers, navigation systems, laser communications and next-generation data links as well as various other sensors on the ground and in the air.

The strength of the concept lies in the integration and networking of all these assets in a clear and user-friendly overall system. To this end, Hensoldt develops almost all the necessary electronic, sensory and optoelectric solutions. MGCS is thus a "blueprint" for the portfolio of the sensor solution house Hensoldt.

Numerous platforms require networked sensors for surveillance, self-protection, detection and target engagement by day and night. What role can Hensoldt play in providing solutions for such platforms?

Hensoldt clearly is a platform-independent supplier of comprehensive sensor solu-

tions. Insofar, we are the ideal partner for the OEMs you mentioned, for three reasons: First, we have all the relevant sensor technologies under one roof, second, we are creating superior solutions by sensor fusion and AI, and third, we are working since decades in multi-company, multi-national programmes so that we know exactly how to integrate sensor technologies into complex systems.

Is it possible to see an example of this offering at Eurosatory?

For sure! Together with our partner Iveco Defence Vehicles we are displaying the MUV Military Utility Vehicle (MUV), a modular sensor fusion platform that can be used in the civil and military sectors for reconnaissance as well as for self- and convoy protection. A sensor suite from Hensoldt is installed on it, with a variety of sensors connected by a Central Processing Unit (CPU), which forms the backbone of the sensor suite.

The system architecture provides automatic information processing that supports the user in decision-making and ensures operational readiness under all conditions. Through the sensor data network, Hensoldt creates complete situational awareness with its Sensor Suite. ■

SOUCY: RUBBER TRACKS FOR SP HOWITZERS AND LIGHT TANKS

By VALERIO DEL GRANDE

HALL
6
STAND
K 177



Soucy's latest improvements are major step forward in their capability and opens the door to a previously unavailable market segment, such as tracked self-propelled artillery systems and light tanks. The company announced the latest iteration of its rubber tracks, which can be used on tracked platforms weighing up to 55 tonnes. Soucy leveraged its over 50 years experience of rubber track design in the civil segment and com-

bined the requirements from defence applications.

"Innovation doesn't have to be radical and disruptive, taking what you know works and having the courage to disregard what doesn't, can unlock previous barriers. Sometimes simplicity within the complexity of design is the key. Working with our customers at the right pace will help to capitalise on this latest step change," says Normand Lalonde, VP Defense Division.

"Our engineers and chemists continue to surpass expectations, and their combined innovation will meet the demands of the latest armoured vehicle designs," says Kevin Sloan Regional Director, Business Development. "To stay competitive we must meet the customer's needs. We have had to evolve to meet the demands placed upon the OEMs. This latest achievement allows us to enter new markets," says Kevin Sloan.

The latest developments allow

SP howitzers and light tanks to profit from the advantages of rubber versus steel trucks. Beside increased durability, rubber tracks reduce vibrations, up to 70% according to the company, as well as noise, up to 13 dB, and fuel consumption, up to 30%. They are lighter, have a lesser thermal signature, and reduce fatigue for both crews and on-board subsystems, increasing effectiveness and availability and reducing life cycle cost. Next step, main battle tanks! ■



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GM DEFENSE PRESENT AT EUROSATORY FOR THE FIRST TIME: TOWARDS "A MORE ELECTRIC, AUTONOMOUS, CONNECTED FUTURE" WITH THE ISV

By Murielle Delaporte

HALL
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STAND
D 588



First time exhibitors at Eurosatory, GM Defense is powered by General Motors and innovated to meet global defense and government customer needs. Leveraging the best of what its parent company, GM, delivers in advanced technology, world-class manufacturing and with a robust global supply chain, GM Defense is focused on integrated vehicle development, power and propulsion solutions, and meeting mo-

bility and autonomy requirements to bring our customers into a more electric, autonomous, connected future.

GM Defense welcomes show attendees to visit booth D588 to learn more about the configurable Infantry Squad Vehicle (ISV), an agile expeditionary troop transport vehicle. The ISV is light enough to be slung loaded from a UH60 Blackhawk and compact enough to fit inside a CH47 Chinook. Based

off the Chevrolet Colorado ZR2 architecture, the ISV features 90 percent Commercial-Off-The-Shelf parts and can be adapted to support a variety of missions.

Visitors will also see the Chevrolet Off-Road Concept Vehicle based on a modified full-size truck chassis. With a customized lightweight body, the concept vehicle is powered by a Chevrolet Performance LT4 650-horsepower

supercharged crate engine and is enhanced with bespoke long-travel, off-road racing suspension to demonstrate larger scale mobility solutions.

GM Defense will also display the GMC Hummer EV chassis, featuring GM's highly flexible next generation battery technology. The Hummer EV is capable of full 350kW / 800V DC Fast Charging, for charging nearly 160 kilometers in 12 minutes. ■

SMARTSHOOTER LAUNCHES SMASH X4

By Giles Ebbutt

HALL
6
STAND
C 680



SMARTSHOOTER from Israel has developed a new addition to its family of small arms fire control systems and is launching the SMASH X4 at Eurosatory.

SMASH X4 combines a x4 magnifying optic scope with SMARTSHOOTER's SMASH fire control capabilities providing extended detection, recognition and identification ranges for the shooter as well as extended lethality ranges.

The SMASH X4 also includes an etched reticule to allow shooting without battery power. An optional integrated Laser Range Finder (LRF) enables range measurement both as a user-initiated capability as well as a system input for improved precision. Night-capability is also available by using the X4 with thermal night vision devices as a clip-on.

The SMASH small arms fire control system is based on advanced image and ballistic processing which recognises the target and remains locked on it even when the target or weapon user moves, ensuring a high probability of a first-round hit. The basic SMASH system, which mounts on standard weapon rails, comprises a red

dot 'reflex' sight, providing the shooter with a naturalistic sight picture and improved situational awareness. Once locked onto the target, SMASH tracks its movements in the sight.

The company will also showcase the other members of the SMASH family at Eurosatory. The SMASH AD is designed to provide kinetic elimination of small, low-flying UAVs and is capable of receiving and displaying target information from an external sensor or detection system. The SMASH Hopper is a Light Remotely Controlled Weapon Station (LRCWS) that can be mounted on manned and unmanned platforms, on a standalone deployable tripod or a stationary fixed mast, and can be integrated into C2 systems. The SMASH Dragon is a lethality payload for small UAVs.

SMARTSHOOTER has recently completed delivery of "several thousand" SMASH systems to the Israel Defence Force and other customers. ■

TELEDYNE FLIR EOD ROBOT FAMILY GROWS: HERE IS THE KOBRA 725

By VALERIO DEL GRANDE



leveraging the experience acquired with the Kobra 710, Teledyne FLIR is unveiling at Eurosatory the next iteration of its EOD robots, the Kobra 725. Mobility, transportability and lift capability are the three areas in which the company invested most, based on customers feedbacks. The form factor was improved, the Kobra 725 is 1,334 mm long, new optics and additional thermal optics being installed. The Kobra 725 is a generational and technological upgrade of the existing 710, the chassis and manipulator arm being of similar size, weight being also similar at around 250 kg, the main changing being in the back of the mobility platform. Here, the robot features a platform that hosts a mast with a pan and tilt head carrying an assembly including a colour camera with a zoom lens, a FLIR Boson LWIR thermal camera and an illuminator. These can be panned over 360° allowing the operator to monitor the overall scene, and not only the specific working area of the system, and can be used for perimeter control, reconnaissance, and area security during EOD operations. The mast is mounted on an over-damped spring allowing the mast to bend without braking in case the robot capsizes, a reel being also installed on the left of the platform hosting a fibre-optic cable allowing controlling the robot when radios cannot be used. As other Kobras, the 725 is fitted with flippers as long and as strong as the platform tracks, allowing to shift the centre of gravity for maximum mobility. The Kobra 725 is the commercial variant of the US Army Common Robotic System-Heavy and is ready for production. ■

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CHESS DYNAMICS SHOWS HAWKEYE

By GILES EBBUTT

Chess Dynamics is showcasing the Hawkeye Modular Mission POD (MMP), its latest electro-optical solution in the land domain, at Eurosatory 2022. The system is part of Chess's wider high-accuracy servo-stabilised solutions portfolio and builds on the combat-proven Hawkeye Systems for long range detection and 24-hour target observation.

According to Chess the Hawkeye MMP, a long-range surveillance device that can track targets accurately even in

challenging environmental conditions, is a highly stabilised, plug-and-play solution. It is very reconfigurable due to its modular, open architecture, so different configurations that can be rapidly adapted to many tactical situations are easily achievable.

Designed for easy installation, the Hawkeye MMP combines a fully modular and reconfigurable system with payload options for surveillance, targeting and counter-unmanned aerial system (C-UAS) scena-



rios. It also includes a proven, easy to use and intuitive visual interface, which presents clear images of objects of interest. Hawkeye MMP can also be connected to a combat management system to hand off and receive targets quickly and effectively, considerably enhancing mission performance. The system uses 'a single head' with rapid removal and replacement of the quick fit pods for mission role changes, which removes the need to hold dedicated vehicles or systems for those specified roles.

It enables it to be interchangeable between platforms, easily integrated onto different vehicle platforms, and suitable for fixed or mobile installation. The modular, open architecture of the Hawkeye MMP solution enables rapid interchangeability for multi-role missions and provides significant cost-saving opportunities for future mission module changes and the facilitation of sensor re-fresh programmes. The modular approach also provides a future proof system for the life of the vehicle. ■

SOFRAINE LIVRE LES PREMIERS ENGINS DE DÉPANNAGE AURUS ET TAURUS À LA DÉFENSE BELGE

Par MARC CHASSILLAN

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EXTÉRIEUR
PE6A-B430

La haute attrition enregistrée dans les conflits modernes rend précieuse la valeur de chaque véhicule, d'autant que la réduction des formats n'autorise plus les pertes importantes. On comprend dès lors tout l'intérêt de disposer de moyens de récupération des engins en panne ou endommagés. Leur remise en service aussi rapidement que possible est cruciale pour maintenir le niveau capacitaire lors des engagements. La capacité d'extraction des véhicules en panne ou endommagés au niveau même de la zone des combats est le concept retenu par la Défense belge et Soframe y a répondu avec les engins Aurus et Taurus. Cette capacité d'intervention au plus proche des zones d'engagement implique un niveau de protection élevé, notamment à l'égard des feux d'artillerie extrêmement agressifs dans les conflits symétriques.

Soframe a donc développé et testé des solutions très innovantes de blindages qui protègent les équipages et les zones vitales des engins Aurus et Taurus. Les deux véhicules utilisent des châssis



de conception Mercedes que Soframe adaptent profondément afin d'intégrer des équipements de mission (grue, treuil, remorquage), des solutions de protection passive, des moyens C3I et des systèmes d'autoprotection et de défense rapprochée. Aurus et Taurus, qualifiés et produits en série, enrichissent l'offre commerciale export du constructeur alsacien. ■

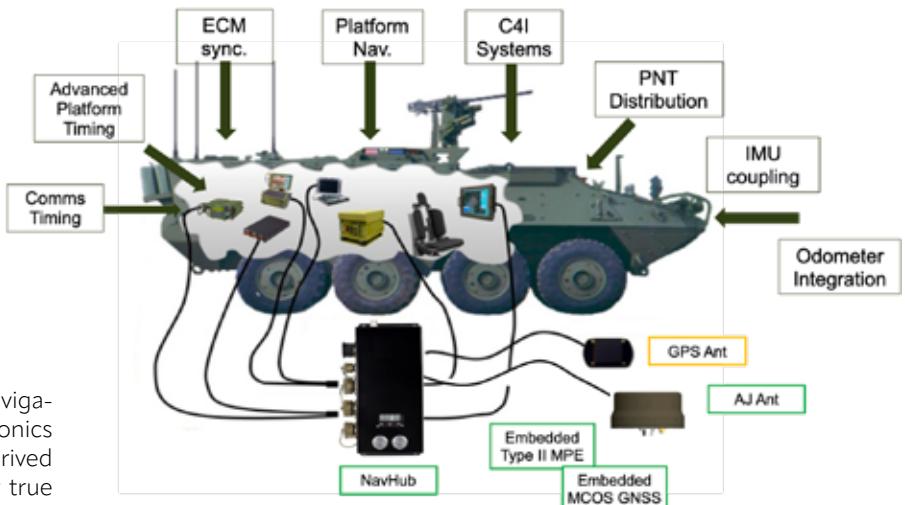
HUMS... NO, IT'S ALL OK!

By JEAN-MICHEL GUHL

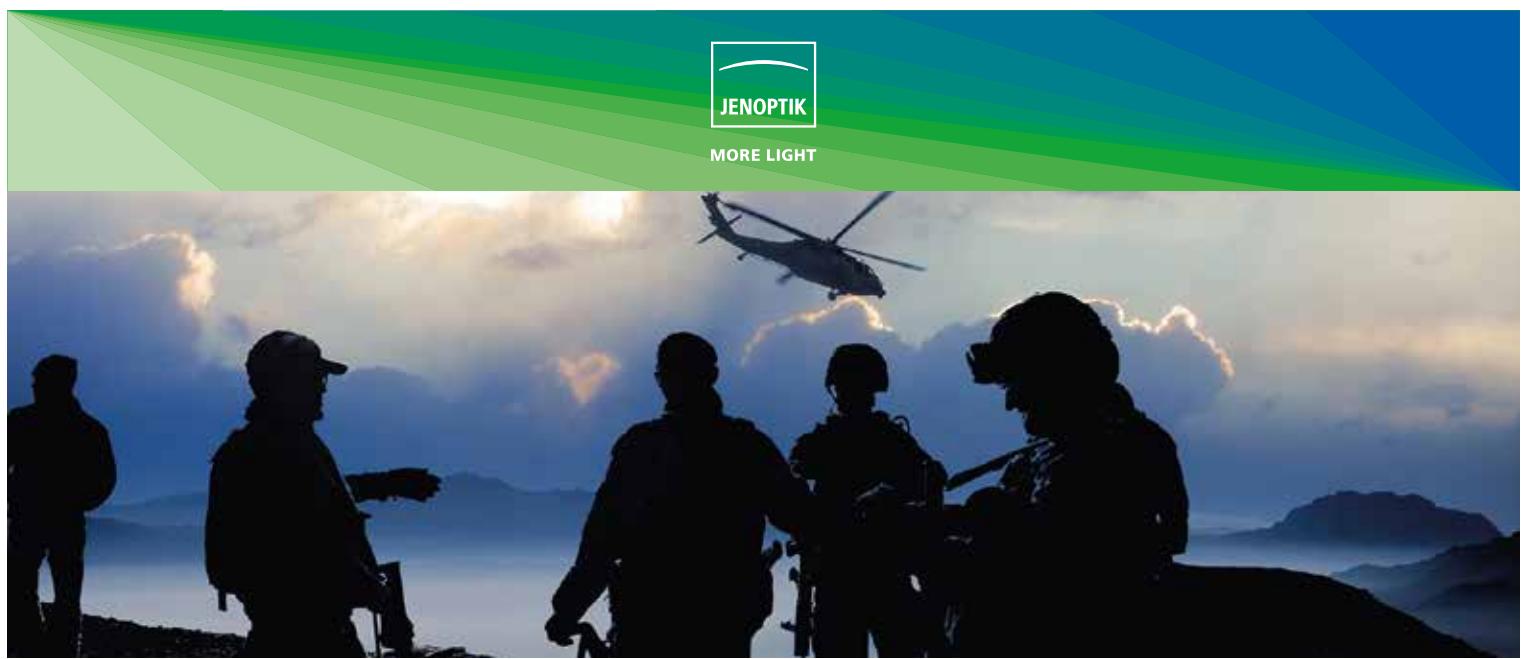


Collins Aerospace, a renowned specialist in navigation systems, is enhancing its precision electronics offerings with existing technology «blocks» derived from the aerospace sector. This is particularly true of its Health and Usage Management Systems (HUMS), which automatically monitor hundreds of signals produced by an aircraft through a network of advanced sensors coupled with onboard computers. Designed as compact devices, these HUMS help increase, for example, the availability and safety of helicopters while saving valuable maintenance resources for commercial and military aircraft.

Collins Aerospace HUMS synthesize and analyze engine, rotor, and power train flight data and track the usage and health of an aircraft and its major components. Current and historical flight data is integrated into a comprehensive database with



full reporting capabilities to facilitate day-to-day maintenance, logistics and planning for single vehicles or entire fleets. These HUMS have proven to improve aircraft readiness, enhance flight safety and reduce maintenance and operating costs, which is why they are now being mass produced to equip valuable ground platforms, such as tanks or troop transport vehicles by providing both crew and support personnel with a wealth of accurate information on the overall condition of a vehicle, especially regarding certain equipments that are difficult to physically reach because nestled in places that are sometimes hard to access! ■



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A NEW MOBILE SHORAD SOLUTION FROM SAAB

HALL
6
STAND
H 368

By VALERIO DEL GRANDE



Although not present in person at Eurosatory, the system has gone through a further test firing last week, one of the subjects at the Saab stand is definitely the MSHORAD, the Mobile Short-Range Air Defence system unveiled earlier this year and which is getting ready for the official presentation in late August. The system exploits the RBS 70 NG as effector, the Saab laser-guided missile having an effective range of 9 km

with a 5,000 meters maximum engagement altitude, surveillance and tracking being provided by a Giraffe 1X 3D multi-mission radar, which can detect a fighter aircraft at 30 km distance and 10,000 meters altitude, and a small UAS at 13 km and 4,000 meters.

The MSHORAD mobility platform is the MARS 4x4 S-330 armoured vehicle by Czech SVOS. A pick-up version of the vehicle with a double cabin is

used to carry the radar, while the missile turret carrying three RBS 70NG is fitted on a full-length cabin vehicle.

The missile turret is a derivative of Saab's Trackfire RCWS, on which the three-missile launcher, originally used on the remotely controlled version of the RBS 70 NG, is fitted. The Common Sight Module is fitted into the turret, which provides high-resolution images and advanced

cueing and tracking modes. The sight can be removed from the turret, and fitted to the pedestal that is carried in the vehicle, allowing to deploy a MANPADS i.e. on a roof in an urban scenario, which considerably increases the system flexibility. The firing unit has a crew of three and can carry four spare missiles. One radar can provide the cueing to up to 12 firing units. All the system elements are exhibited at the Saab's booth. ■

UNE MITRAILLEUSE VRAIMENT POLYVALENTE

Par JEAN-PIERRE HUSSON

HALL
6
STAND
J 247



Dernière évolution des mitrailleuses de la série MG, chambrée à l'origine pour la cartouche de 7,62 x 54 mm, la MG-M2/M2S d'Arsenal (Bulgarie) est proposée désormais et uniquement en calibre 7,62 x 51 mm standard OTAN. Dérivée de la célèbre PKM, il s'agit d'une mitrailleuse moderne et polyva-

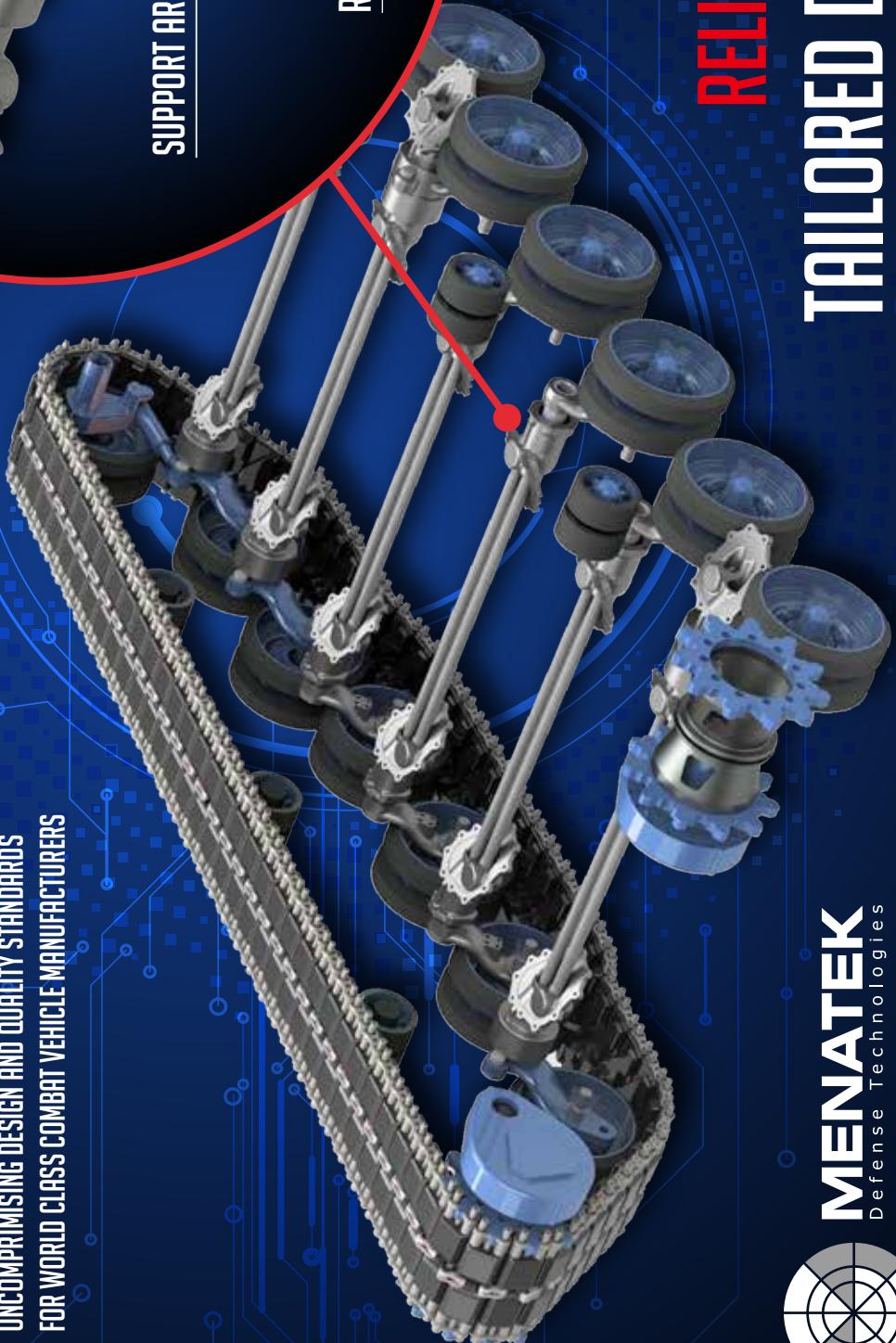
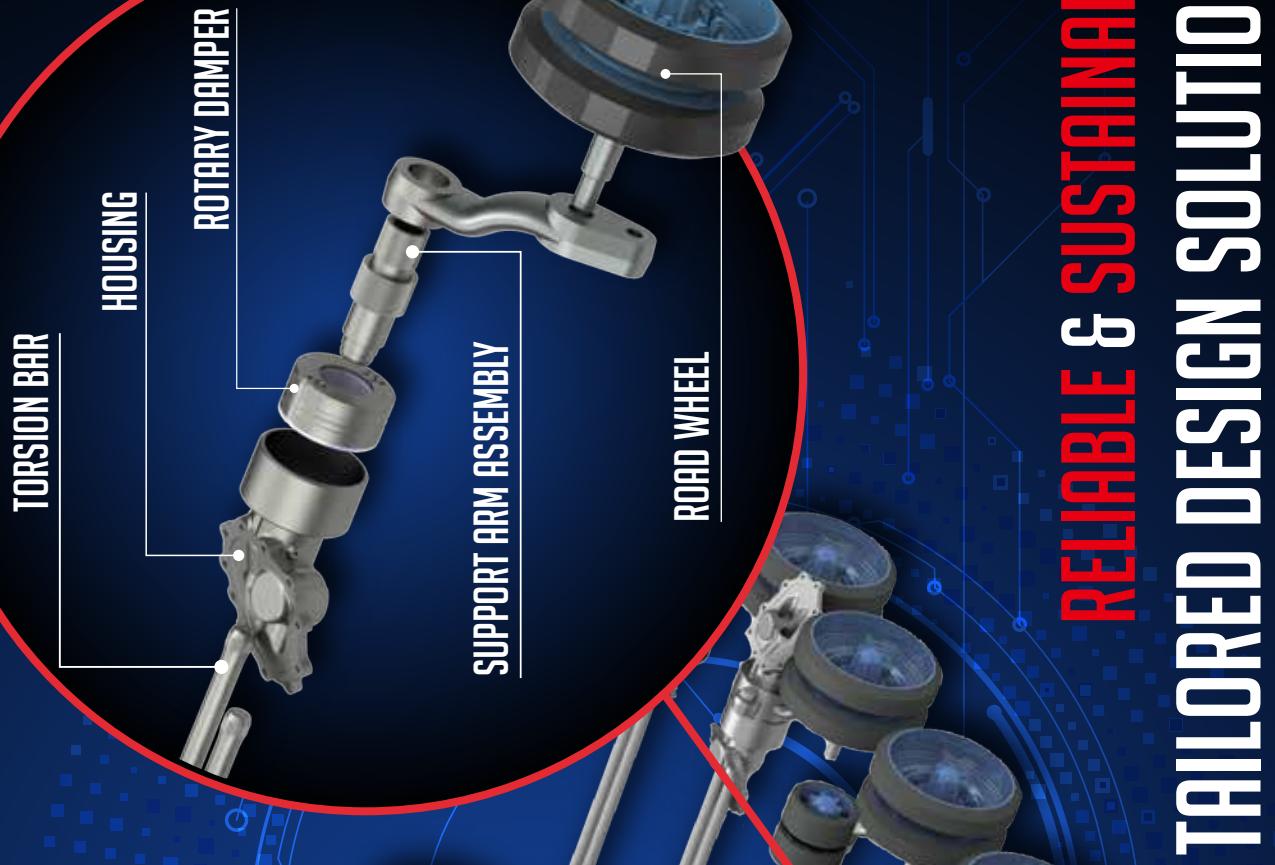
lente, dotée d'un canon marmelé à froid et chromé intérieurement, afin de permettre le tir soutenu et d'augmenter sa durée de vie, garantie pour 25 000 coups. Conservant le système de fonctionnement par emprunt de gaz et culasse rotative, avec modalité de tir automatique et au coup par coup, la MG-M2/M2S se caractérise

par la présence d'éléments réalisés en polymère renforcé ou FRP (*fiberglass reinforced polycaproamide*), tels la crosse et le garde-main notamment, et d'un rail Mil-Std 1913 positionné sur le dessus de la boîte de culasse, qui permet le montage d'un accessoire d'aide au tir, venant compléter les organes de visée métalliques standards. Ceux-ci sont constitués d'un guidon sous tunnel et d'une hausse à curseur, dotés de repères luminescents au tritium afin de faciliter la prise

de visée en condition de faible luminosité. L'alimentation de l'arme, dont la cadence de tir, est de l'ordre de 650 coups/minute, est assurée par bandes standards de 100 ou 200 cartouches, y compris à maillons désintégrables type M13. En tant que mitrailleuse polyvalente, elle peut être utilisée soit avec son bipied standard télescopique, soit montée sur le trépied Arsenal TAR MG en configuration « lourde » dite MG-M2S. Affichant une longueur totale de 1 200 mm, l'arme pèse 9,3 kg sans le trépied de 4,5 kg et les munitions, soit 3,9 et 6,6 kg pour, respectivement, les boîtes de 100 et 200 coups. ■

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FN HERSTAL LAUNCHES ITS NEW FN HIPER IN 9X19 MM

By VALERIO DEL GRANDE



BELGIAN
PAVILION
HALL 6
STAND F 197

Virtually unveiled in late May, the new FN Herstal striker semi-automatic pistol, the FN HiPer, appears for the first time in public at Eurosatory. To develop its new product the Belgian small arms manufacturer took the best of the existing features and blended them with a series of innovative and patented elements, giving birth to a new 9x19 mm pistol in which ergonomics was probably the key design parameter.

This becomes obvious looking at the hand grip, which angle was optimised to the best compromise between static and dynamic comfort, and which dimensions can be tailored to the shooter's hand thanks to ergonomic grip covers. For the same reason the new trigger mechanism can be adjusted in pressure and travel. For easier cocking an optional tactical locking plate can be fitted, while a newly

designed ambidextrous magazine catch allows magazine change while remaining aligned with the target. The 15-round magazine itself is new, made in special polymers, FNH stating it is more reliable and durable than metal ones.

Safety remains also of key importance, the ambidextrous slide catch being positioned in order to avoid any accidental activation.

A short barrel recoil operated pistol, it weighs 730 grams with empty magazine, is 180 mm long and is fitted with a 100 mm barrel. The FN HiPer is available in MRD (mini red-dot) version and in standard version. The former features is fitted with an FN patented interface which makes it compatible with the most commonly used red dot sights and is 149 mm high, the standard version with standard iron sights being 142 mm high. ■

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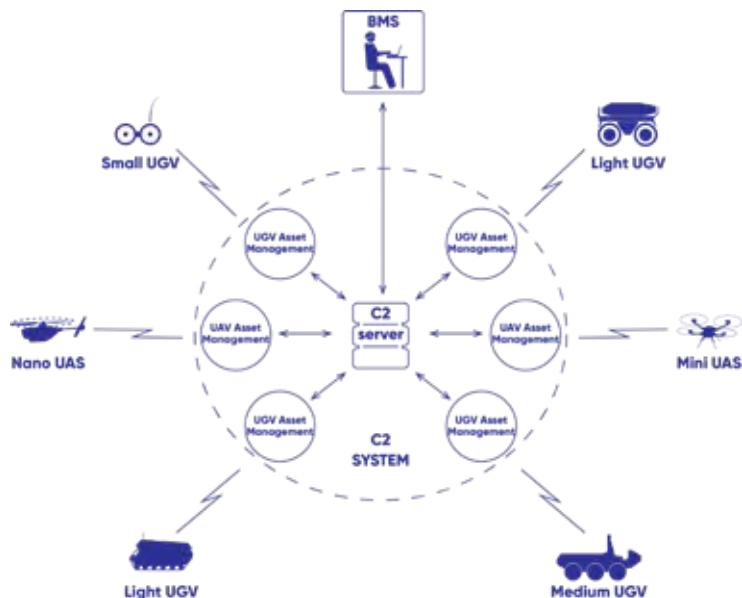


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MILREM ROBOTICS LAUNCHES COMMAND AND CONTROL FOR ROBOTIC SYSTEMS



The Estonian robotics and autonomous systems developer Milrem Robotics has launched a command and control (C2) system for intelligent unmanned systems. The system is developed in cooperation with Fleetonomy.ai, Rait88, MIL Sistemika and other partners.

Milrem Robotics' solution integrates multiple different unmanned aerial and ground assets (UxV) into a composite command and control system and merges sensor and effector data from multiple payloads. It allows the constant monitoring and controlling of the UxV systems' most important variables, such as energy status, fault conditions, operating parameters, built-in diagnostic tests, initialization, and configurations. The C2's autonomy engine is capable of remotely navigating and controlling the position and

motion vectors of the UxV's. It also provides many autonomous functions like flight control, target detection, automatic optimized routing object avoidance and geo-mapping. It uses fewer human resources than non-integrated combat organizations. UxVs comprise the house made THeMIS, the Multiscope UGV and the Type-X Robotic Combat Vehicle. The first is intended for civilian use (forestry and firefighting), the Type-X RCV is a wingman for mechanized units. Milrem Robotics is the leader of a European consortium awarded 30.6 MEUR from EDIDP to develop iMUGS, a European standardized unmanned ground system (UGS) that will feature a modular and scalable architecture for hybrid manned-unmanned systems aiming at standardizing a European wide ecosystem. ■

HALL 6 - STAND K 253

EXTEND RANGE, SHARPEN FOCUS
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ALLISON TRANSMISSION PRESENT ITS ELECTRIFIED PROPULSION SOLUTIONS

By MURIELLE DELAPORTE

Allison Transmission was founded in 1915, Allison Transmission is headquartered in Indianapolis, Indiana, USA. With a presence in more than 150 countries, the company has regional headquarters in the Netherlands, China and Brazil, manufacturing facilities in the USA, Hungary and India, as well as global engineering resources, including electrification engineering centers in Indianapolis, Indiana, Auburn Hills, Michigan and London, UK.

A leading designer and manufacturer of conventional and electrified vehicle propulsion solutions for tactical wheeled and tracked defense vehicles, and medium- and heavy-duty commercial vehicles, the company is showcasing its new electric axles, Allison eGen Power®, for defense and homeland security applications at Eurosatory 2022.

Allison eGen Power is a series of zero emission electric axles for medium and heavy

duty commercial vehicles. The eGen Power 100D features two electric motors, with a combined peak output of 652 kilowatts and steady state of 454 kilowatts. It also incorporates a two-speed gearbox in the central housing, enabling the high torque required to get heavy loads moving, while also offering the benefit of superior efficiency at cruise speed. The eGen Power 100D is capable of supporting up to a 10.4 tonne gross axle weight rating and also includes differential lock functionality.

Allison Transmission also presents its new 2000 Series 9-Speed transmission, the 3040 MX fully automatic cross drive and the Next Generation Electrified Transmission (NGET) developed to satisfy future requirements for the heavy Infantry Fighting Vehicle and future Main Battle Tank markets.

This transmission features the latest fuel economy software, Allison's FuelSense®

HALL
5A
STAND
C 588



2.0 with DynActive® Shifting. At the heart of this technology, is an algorithm that continually assesses driving conditions - taking into account factors such as vehicle weight, road gradient, the frequency of stop-starts and throttle use - to initiate subtle but significant alterations in gear shift points. FuelSense 2.0 offers the highest benefit for applications with heavy start-stop operation.

Allison Transmission continues to push the boundaries of ultimate reliability and enhanced capabilities in its cross drive portfolio in support of vehicle modernization plans for allies around the globe. ■



Well known for its armoured wheeled vehicles, Patria of Finland is however involved in many other activities, and at Eurosatory it unveils a solution aimed at countering Class 1 UAS and small size loitering munitions, C-UAS being one of

today's key areas of interest. Still a concept and technology launch, it doesn't yet have a commercial name. The Patria system is lightweight and comes as a manportable launch tube which dimensions are not yet unavailable considering that the configuration is not yet frozen.

As soon as the round leaves the tube, the five fins, which are folded forward, swing open to stabilise the flight up to a range of approxima-

tely 100 m. Here the capsule opens up and releases a large amount of strings made of a special type of material that quickly clings to the drone's propellers and motors. At that point the drone is no more controllable and falls from the sky. According to the company, the projectile can be optimized for other distances if required, such as for automated launcher systems with target tracking capabilities. In fact the projectile can be produced in different calibres, depending on the required effect, distance and cloud size, effective ranges between 50 and 150 m being considered.

HALL
6
STAND
G 300

COUNTERING CLASS-1 UAS: THE PATRIA CONCEPT

By VALERIO DEL GRANDE

Beside being used as a manportable system, the Patria C-sUAS system can be used as last ditch effector into layered C-UAS systems, mounted on remotely controlled weapon stations, IFV and tank turrets, as well as on naval vessels and fixed structures.

Patria tested its C-sUAS solution carrying out numerous tests both in the laboratory and in the field. Its solution is in the productization phase, Patria aiming to bring it to market in 2024, depending on customer requirements, final product configurations and system integrations. ■

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INTERNATIONAL ARMORED GROUP INTRODUCES NEW 8X8 RILA IFV

By MARC CHASSILLAN



HALL
6
STAND
H 138

RILA 8x8 is an Armored Infantry Fighting Vehicle (IFV). IAG has developed multiple versions of the RILA 8x8, with different features, specifications and armaments. RILA can be armored up to STANAG 4569 LEVEL 4 protection. The available gross weight ranges between 26,000 to 32,000 kg. RILA 8x8 is powered by a 550HP to 720 HP diesel engine of 13.0 l or 16.0 l. The road speed is well over 105km/h, with the ability to maintain a cruising range of 720 km. Equipped with blast attenuation seats, the RILA 8x8 can accomodate up to twelve (12) fully geared personnel including driver and commander.

The standard configuration includes a 25mm main weapon system with a 7.62 mm secondary weapon, but the end user can customize alternative weapons. RILA 8x8 can be fitted with a multitude of options including hydraulic winch system, amphibious capability, 360° video camera surveillance system with night vision / thermal camera system, fire suppression system, CBRN collective protection, Battle Management Systems (BMS), anti-RPG nets and an Auxiliary Power Unit (APU). The RILA 8x8 IFV is mission ready and available for delivery. Others IAG products can be seen at Eurosatory such as the Guardian Xtreme ambulance, the Elevated Tactic System Flyer and the ballistic armor shield. ■



OIP SENSOR SYSTEMS PRESENTS THE THIRD ITERATION OF ITS IRBIS SIGHT FAMILY

By VALERIO DEL GRANDE

In order to meet the needs of its customers, OIP Sensor Systems further developed its Irbis family of night sights, the new Mk 3 iteration allowing to add further flexibility to those systems. These night sights, based on state of the art image intensification tubes, are available with two magnifications, x4 and x6, with respective fields of view of 8.7° and 5.8°. The Irbis 4x Mk2 and Irbis 6x Mk2 had a red reticle of one single type. This is not true anymore with the Irbis 4x Mk3 and Irbis 6x Mk3, the OLED display permits to customise the reticle, numerous patterns being digitally stored

in the sight, as well as to change its colour to better suit the operator needs. However this is not the only plus for the Mk 3 versions; boresighting is now digital versus the manual operation required by the Mk 2. While the x4 and x6 Mk2 sights had respectively a 0.3 mrad and 0.2 mrad adjustment steps, the digital solution allows a better finetuning, steps for both versions being of 0.1 mrad.

Optical data remain the same, focus from 25 m to infinity, exit pupil size grater than 10 mm and eye relief grater than 30 mm. Also dimensions are the same, 295

x 95 x 115 mm for the 4x and 330 x 100 x 120 mm for the 6x, weight being respectively 1.2 and 1.3 kg, with a marginal reduction of 20 grams over the Mk models. The Irbis Mk 3 on display is a prototype. Adjustments based on user feedback will be incorporated in the final version that will be ready for serial production in the second half of 2022. ■

HALL
6
STAND
F 287

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CAMERO XAVERS: THROUGH-THE- WALL SENSORS FOR FIRST RESPONDERS

By VALERIO DEL GRANDE

Understanding if there is a human being still alive behind a wall, or even locating him with some precision has been for a long time the dream of first responders. Part of the SK Group Camero of Israel, a company specialised in real-time imaging through barriers, has put together a Search & Rescue package that includes some of its dual-use systems that are also employed by police and military units.

Two Xaver 100 systems, capable to indicate target presence, movement direction and distance up to 20 m, weighing only 660 grams each are included in the package, together with a Xaver 400. While

HALL
6
STAND
F 701

the Xaver 100 provides only one-dimension information, the Xaver 400 shows on its screen a 2-D view plus time. It has a 120° field of view and of course is heavier, 3.2 kg. Simple to use, the first responder must only apply the sensor to the wall and switch it on, the Ultra-Wideband (UWB) sensor picking up not only people who moves but also the minimal movement of a living person who stays still. Xavers are able to see through most standard building materials.



The XaverNet is also part of the rucksack, this being a remote wireless ToughPad that can receive real time visual data and fully control remotely up to four Xaver systems simultaneously at distances up to 200 m, depending on conditions, and also allows a better view on its bigger 7-inch screen. A tripod, a monopod and a spider strap, useful to keep in place the Xavers freeing the operators hands, are also contained in the multi-functional backpack which weighs overall less than 9 kg. ■

CONTRER LES MENACES NRBC

Par JEAN-PIERRE HUSSON

Basé sur le Véhicule blindé léger LMV d'Iveco Defense (Italie) testé au combat, Cristanini (Italie), leader mondial dans le secteur de la décontamination, a développé une variante dédiée à la reconnaissance, l'analyse et l'évaluation des menaces NRBC.



Tout l'équipement de détection et de prélèvement d'échantillons, qui peut se faire sur tout type de terrain (asphalte, sable, milieu humide, etc.), est situé à l'arrière du véhicule. Les coordonnées de la position sont enregistrées par GPS et les informations recueillies sur le lieu de prélèvement des échantillons saisies, enregistrées et sauvegardées dans le système informatique du véhicule, afin de pouvoir être transmises à d'autres véhicules ou à des centres de commandement opérationnels. Offrant une gamme complète de fonctionnalités, telles que la détection d'agents chimiques jusqu'à une distance de 5 km, la détection d'agents biologiques et la surveillance de l'air et des radiations, le véhicule

est équipé, par ailleurs, d'une station météo pour enregistrer la direction et la force du vent, ainsi que d'autres paramètres. Toutes les opérations peuvent être effectuées par un équipage réduit. Outre la protection balistique contre les armes de petit calibre et les EEI/IED propre au LMV, la protection du personnel en contexte NRBC a également été scrupuleusement prise en compte à travers la mise en place de systèmes de filtrage et de contrôle de la qualité de l'air et de dispositifs de pressurisation de l'habitacle du véhicule. De plus, un système de décontamination de fin de mission est également disponible à bord du véhicule. Outre cette configuration NRBC, qui combine deux excellences italiennes, IVECO Defense et Cristanini présentent en avant-première un autre véhicule spécial pour les opérations en milieu contaminé, le VIRE (Veicolo d'Intervento Rapido d'Emergenza pour « véhicule d'intervention rapide d'urgence »), développé sur plate-forme 4 x 4 IVECO MUV (Military Utility Vehicle). ■



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AUSA SET ON SHOWCASING U.S. INNOVATION AT EUROSATORY

By ELISABETH GOSELIN-MALO

PAVILLON
US
HALL 5A

Over the last 20 years, the Association of the U.S. Army (AUSA) has closely supported Eurosatory. In the context of the 2022 edition, AUSA-a non-profit educational organization serving as the connective tissue between army industry, government and citizenry-is back as the official organizer of the USA Security and Defence Pavilion. As the largest international pavilion, the U.S. has a total of 110 exhibitors of which 23 are newcomers at Eurosatory this year. On new trends being presented at the show, Brigadier General

John F. Haley, U.S. Army retired, and Vice President of Memberships and Meetings at AUSA says that, "on the rise are robotics, autonomous vehicles, cyber security, mini-UAS and swarm-type drone technologies."

Against the backdrop of the Ukraine war, the importance for American defence companies to partake in Eurosatory is ever more important to allow for a flow of innovation and interconnectedness across the spectrum of industries. On this, Haley adds that, "from what we have seen in Ukraine,

this [exhibition] represents an opportunity for these firms to emphasize the importance of land power as well as America's national security strategy focused on the Indo-Pacific region. In addition, the war situation has also validated the priorities of the U.S. Army, where the number one is long-range precision fires and has been widely used there." America is one of 63 exhibiting countries this year, and as part of its main strengths are the amount of time and money it spends



on innovation, research and development as well as the combat-tested, proven systems it is showcasing. As Haley concludes, "we know our equipment is effective and works." ■

BITTIUM EXTENDS ITS TOUGH FAMILY

By GILES EBBUTT

HALL
6
STAND
H 300



Bittium, the Finnish tactical communications company, has revealed its Tough Mobile 2 Tactical individual soldier mobile communications solution at Eurosatory.

The assembly consists of the Bittium Tough software defined radio (SDR) Handheld (HH); Bittium Tactical Power Pack; the Bittium Tough Mobile 2 smartphone together with its tactical case and chest mount; and connecting cabling. At the Show the assembly is shown integrated with a Savox headset and PTT, but the system is peripheral-agnostic. The whole assembly weighs less than 2Kg.

The Tough SDR HH provides secure communications over wide and narrowband waveforms across the 30-2500MHz frequency range. The power pack combines

two 70Wh HH batteries which can either be used together or singly, providing a hot swappable capability.

The Tough Mobile 2 smartphone has a hardware based multi-level security architecture with configurable hardware keys. It uses the Android operating system and is compatible with different battle management systems including the Android Tactical Assault Kit (ATAK).

Additional options include a helmet-mounted camera, which can have either wireless or cable connections, and integration with a tactical hub to allow connection to additional facilities such as

a second radio. It is agnostic to hub type and has been successfully integrated with one from GlenAir.

The Show Daily understands that Bittium has a launch customer for the Tough Mobile 2 system but Bittium company representatives would not confirm this. ■

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Unité internationale de contre-terrorisme intervenant aussi bien en France qu'à l'étranger, les missions du GIGN incluent :

- la lutte contre le terrorisme ;
- la lutte contre le grand banditisme ;
- l'intervention sur les prises d'otages et contre les forcenés les plus dangereux ;
- la protection rapprochée des diplomates dans les pays en guerre ou en crise (comme à Kiev récemment).

Dans l'entretien ci-dessous, le commandant C. décrit les changements majeurs affectant les menaces auxquelles le GIGN est aujourd'hui confronté, ainsi que l'évolution des équipements dont ils sont dotés pour y faire face.

Commandant, la dernière démonstration dynamique du GIGN en ces lieux remonte à quatre ans : quels sont les grands changements affectant le GIGN et pourquoi avoir choisi ce scénario pour la démonstration dynamique ayant lieu cette année ?

Indépendamment de la crise sanitaire, ce qui nous a le plus impacté ces dernières années sont les mouvements sociaux très forts, que ce soit dans les Antilles récemment en fin d'année dernière, ou alors des phénomènes de plus en plus prégnants liés aux modes opé-

ratoires de survivalistes et de forcenés reclus.

Si nous avons connu ce type de menace par le passé, celle-ci revêt un caractère nouveau, en ce sens que nous sommes face à des individus qui « passent un peu sous les radars » et qui ne se dévoilent pas. Ils sont surtout très lourdement armés et se nourrissent de culture militaire.

D'où le scénario présenté à Eurosatory cette semaine mettant en œuvre des éléments radicaux : il s'agit pour la majorité partie de citoyens français

partis combattre à l'étranger dans le cadre de conflits et qui, par phénomène de réappropriation, reviennent sur notre territoire et mettent en œuvre des savoir faire de plus en plus pointus.

Il s'agit de partisans de l'Etat Islamique ou encore d'éléments radicaux politisés créant un « melting pot » d'oppositions d'ordre religieux ou idéologique. Il peut s'agir de personnes agissant au sein de groupuscules et de réseaux parfois alimentés de l'extérieur ou d'individus isolés.

Quelles sont les technologies

de rupture majeures qui se sont développées au cours de ces dernières années ?

Les technologies ont beaucoup évolué en matière de protection balistique, afin d'assurer une protection très forte adaptée à un calibre de guerre, mais à partir de matériaux plus légers, le but étant de préserver les hommes sur des missions longues.

La robotisation et la généralisation de l'emploi de drones permettant la captation d'images et de sons, ont par ailleurs fait évoluer nos processus de façon majeure. ■

MENACE INTÉRIEURE : UN MELTING POT DE RADICALISATION ET DE MILITARISATION INQUIÉTANT

Entretien avec le Chef d'escadron C., commandant la force Intervention du Groupe d'intervention de la gendarmerie nationale (GIGN)

Par Murielle Delaporte

DÉMONSTRATION DYNAMIQUE DU GIGN : SCENARIO & MODE D'INTERVENTION

LE SCÉNARIO

Le scénario présenté par le GIGN oppose ce dernier à un groupuscule d'activistes tombés dans la radicalisation violente. Repliés dans une ferme isolée, dix membres du groupuscule retiennent en otage plusieurs hauts fonctionnaires depuis vingt-quatre heures.

Leurs revendications : démission du président de la République et mise en place d'une gouvernance populaire. Ces mesures doivent être mises en place à 17h00, sinon un otage sera abattu toutes les quinze minutes et des attentats par explosif auront lieu dans toute la France.

LE MODE D'INTERVENTION DU GIGN

Pour résoudre cette crise le GIGN est engagé et la force d'intervention prépare ses différents plans d'action consistant à mener un assaut avant l'ultimatum.

1. Première étape : projetée notamment par hélicoptère la force d'observation et recherche du GIGN confirme la présence d'otages et des activistes.
2. Reconnaissance de la zone notamment avec l'aide d'un drone.
3. Bouclage du périmètre par infiltration de tireurs d'élite et positionnement des colonnes d'assaut dans l'attente du top action du chef assaut.
4. Projection au plus près d'un véhicule brouilleur anti-IED.
5. Déclenchement du plan d'assaut d'urgence en raison d'une menace imminente sur un otage, une situation anticipée et maîtrisée par un tir coordonné neutralisant les preneurs d'otages, l'emploi d'explosifs pour investir l'habitation, sachant que les intervenants sont équipés en bouteille leur permettant d'opérer en milieu vicié.
6. Dernier « tableau » du scénario : une médicalisation *in situ* est en cours, tandis qu'un activiste prend la fuite avec le dernier otage à bord d'un véhicule, donnant lieu à une interpellation finale par les équipes d'intervention du GIGN.

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Multiple Launch Rocket System



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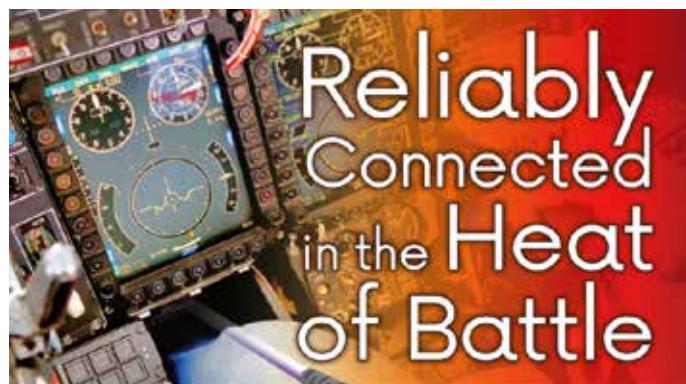
As a leading global land defense system company, NORINCO provides tailored solutions for various customers. In the field of fire strike, maneuver and assault, air-defense and anti-missile, anti-fortification and armor-penetration, special operation, intelligence and reconnaissance, command and control, as well as comprehensive support, NORINCO offers integrated & organizational defense system solutions and reliable technical support to our customers worldwide. NORINCO is committed to and strives for customer satisfaction.

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REVOLUTIONARY DATA COMMUNICATIONS

By DAVID OLIVER



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After five years of development and rigorous testing, AirBorn's Space-rated Active Optical Cable (SAOC) is poised to disrupt traditional space electronics systems. SAOC offers increased data rates and signal distance while dramatically decreasing launch weight. The SAOC takes a standard copper signal and translates it to a fibre optical signal within the connector body. It reduces engineering time by eliminating need for a specialised transceiver and time spent polishing and terminating fibre. The SAOC installs like a traditional copper cable but yields the same benefits of speed, distance, and EMI protection engineers have come to expect from fibre optic cabling. A single-connection interface accommodates both traditional copper cabling and SAOC, giving system designers flexibility.

The UK-based company, AirBorn International Ltd is excited to introduce at Eurosatory the latest disruptive technology to hit the Military/Aerospace and Industrial market in a generation. Our FOCuS active optical cable technology now embodies the Rugged, Active Optical Cable (RAOC). Built on our proven, high-speed verSI connector platform, RAOC exemplifies all the benefits of fibre with the ease and reliability of copper.

The verSI-based RAOC is designed to operate at 4 channels at 12.5 Gbps per channel (50 Gbps aggregate). Features such as multiple points-of-contact, optimal material tensile strength, and metal backshells ensure that RAOC is designed and tested for complete reliability in the heat of battle, when lives are on the line. ■

NAE NORMANDIE AEROSPACE

Par LAETITIA BLANDIN

C'est en force que les champions normands des secteurs aéronautique, spatial, défense et sécurité viendront sur Eurosatory. Réunis au sein de NAE, 160 acteurs du domaine travaillent ensemble non seulement pour conquérir de nouveaux marchés, mais aussi pour proposer des solutions innovantes. Leur point fort ? Un réseau extrêmement complémentaire de sociétés - des grands groupes ou start-up en passant par les PME - des laboratoires et des universités qui bénéficie à la fois du soutien des institutions européennes, françaises et de la Région Normandie, mais également d'une direction pluridisciplinaire dont leur dynamique président, Philippe Eudeline. Depuis la fin des années 1990, plusieurs groupes de travail se réunissent et favorisent les retours d'expériences, les informations entre membres et les rencontres avec les principaux donneurs d'ordres comme Airbus, Thales, Naval Group ou encore Arquus.

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Cette dynamique permet d'innover en s'appuyant sur les technologies et savoir-faire de chaque adhérent dans des domaines de pointe comme la cybersécurité, la fabrication additive ou encore les drones. NAE est par ailleurs l'un des membres fondateurs du Centre d'Innovation Drones Normandie (CIDN) et c'est dans ce cadre que des expérimentations ont pu se faire notamment avec la ville du Havre pour la surveillance de l'espace aérien. Un programme collaboratif qui a permis d'identifier plus de 2000 vols de drones non habilités.

Cap vers l'export ! L'un des objectifs de NAE est de permettre l'acquisition de nouveaux marchés et notamment au travers de partenariats étrangers. En 2022, la filière normande s'est tournée vers la Grande-Bretagne et espère pouvoir concrétiser certaines relations lors des salons Eurosatory et Farnborough. Pour cette édition 2022, une vingtaine de membres de NAE sera présente pour exposer leurs savoir-faire et aller à la rencontre des autres acteurs du secteur. ■

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THE ARMY PROVIDES A DYNAMIC DEMONSTRATION

By GILES EBBUTT

The French Army showed its capabilities across the spectrum of war and in all environments from the Arctic to the jungle in a live demonstration of equipment at Eurosatory. In particular it focused on the progress of Project Scorpion, which is modernising the Army and transforming both its concept of operations and its effectiveness. The programme is expected to be completed by 2033.

The demonstration took the form of an armoured raid by a combined arms company group against a peer enemy, preceded by special force reconnaissance and an airborne

insertion. The operation included the use of tactical UAVs, of which the Army aims to acquire 3000 by 2023-25. Airborne troops deployed with towed 120mm mortars and engaged enemy targets controlled by a forward observer using a UAV to identify the target.

Preceding the armoured raid a fire mission was conducted against an enemy headquarters using the Caesar 155mm wheeled howitzer.

The combined arms company conducting the raid included the AMX-10 wheeled tank, due to be replaced under the

Scorpion programme by the Jaguar; the Leclerc main battle tank which is being modernised; and the véhicule blindé de combat d'infanterie (VBCI) for which a mid-life upgrade programme will start in 2025. During the operation a combat engineer specialist search team deployed a Black Hornet micro UAV to conduct reconnaissance inside a building followed by a tracked robot to neutralise a booby trap detected by the UAV.

Also part of the demonstration were Griffon armoured vehicles from the Scorpion programme, both in the infantry and command post

versions. The operation was controlled using the Système d'information du combat Scorpion (SICS), the new battle management system (BMS) which underpins the French Army's new collaborative combat operational concept.

Together with the army aviation version, SICS ALAT, which will be installed in the upgraded Tigre attack helicopter, the BMS will provide a seamless and rapid command and control system. ■







KEY EVENTS OF THE DAY 2

DO NOT MISS THESE IMPORTANT EVENTS OF THE DAY

CONFÉRENCES

Join international land and airland Defence & Security domain players in their reflection on the current and future challenges of the sector. The conference programme is available on the Eurosatory website or at the exhibition's official Web App



⌚	BALARD HALL 5A	ÉLYSÉE HALL 5B	BEAUVAU HALL 5B	ORSAY HALL 6	AGORA INNOVATION HALL 5A	EXHIBITOR PITCH CORNER HALL 6
10:00AM – 11:00AM	European Defence European Defence Fund – support for collaborative defence R&D European Commission – DG DEFIS	Geostrategy & Geopolitics Ukraine and the strategic role of Land Power: the right lessons IFRI	Public Safety Protection Civile – Helping Ukraine: a logistical challenge Protection Civile	Geostrategy & Geopolitics Export contracts and political risk insurance TOKIO MARINE HCC	10:00AM – 10:30AM KEYNOTE General (2S) Marc Watrin-Augouard, International Cybersecurity Forum Founder	10:00AM – VITEC Shaping the future of ISR FMV
11:00AM – 12:00PM	Simulation Viking 22, a CAX multinational Exercise, using MaaS Technologies PITCH TECHNOLOGIES	UAVs & Robotics Drones and robots tech challenges : cybersecurity, autonomous UAS/UGV/UMV and multi-swarms DRONES4SEC	11:30AM Public Safety Horizon Europe Open calls on Perimeter protection of critical sites PCN CLUSTER 3	European Defence CaMo, a structuring partnership for both Belgian and French land components and procurement agencies	10:30AM – RENK RENK mobility solutions – from engineering to testing	11:00AM – TEXELIS The future of mobility is now: How Texelis is applying Serval success to the next generation of electric armoured vehicle innovation
12:00PM – 1:00PM	Foresight – French Army Staff A renewed vision of low-layer surface-to-air Defence (including counter-UAV)			Countertrade and Offset The implementation of a compensation process within a company ECCO OFFSET / ADIT 30 minutes	11:30AM – THALES Beyond vision – perception	2:00PM – SEDI-ATI Deployable optical fiber for airborne drone
1:00PM – 2:00PM	Foresight – French Army Staff Building and integrate a robotic capability				2:30PM – THALES Scrolling constellations and their military usage	3:00PM – PRELIGENS AI applied to military intelligence: combat-proven use-cases
2:00PM – 3:00PM	Military Health & Medicine Medical support of military operations in 2030 HIPS AGENCY	Intelligence Is OSINT a major stake for industry and intelligence world ? SYNOPIA	Public Safety The future of civil Defence policies in Europe HCFRN	UAVs & Robotics UAV Systems GICAT	3:30 PM – SYSNAV SYSNAV – First Responder	4:00PM – PYROALLIANCE Pyrotechnics as a solution to meet the « Size, Weight and Power – Cost » challenge (SWAP-C)
3:00PM – 4:00PM	CBRNe The EU CBRNe Defense Capabilities IB CONSULTANCY	Innovation Digital transformation for a future-ready defence ecosystem MICROSOFT	Infrastructure protection Perimeter protection of critical sites or "ways and means to cross a barrier" AN2V	Funding D&S Finance and defense: how to coordinate NATO funds, EDF with financial institutions and VCs, to support European strategic sovereignty? SAED-IHEDN	4:30PM – NEXTER A new dynamics of innovation	
4:00PM – 5:00PM	RETEX – French Army Staff Tactical reconnaissance drone system	Cyber What is the role of cyber operations in the Multi-Domain approach? FIC 2022	Security Forum Informational War: the international powers confrontation S&D MAGAZINE	Geostrategy & Geopolitics India - France Defence Industry Cooperation FICCI		

LIVE DEMONSTRATIONS

9:45am-10:30am	Demonstration EUROSATORY
11:30am-12:00am	Live Demonstration of the Paris Fire Brigade
4:00am-4:45pm	Demonstration EUROSATORY
Industries of EUROSATORY Live Demonstration	ARQUUS, FN HERSTAL, ICARUS SWARMS, INTERNATIONAL ARMORED GROUP, TSD International, MILREM, SIDES, TECHNAMM

12:00AM AWARD OF THE START-UP OF THE DAY - EUROSATORY LAB - HALL 5A

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