Army Guide monthly

5 (128) May 2015

- Tactical Satellite VSAT Communication
- PUMA infantry fighting vehicle is entering service with Bundeswehr
- Rheinmetall and MKEK sign memorandum of understanding for joint cooperation
- BAE Submits Bid for USMC Amphibious Combat Vehicle 1.1 Program
- Human-robot Teams Compete June 5 at DARPA Finals
- Rolls-Royce To Supply MTU Engines For British Army's Scout SV Armoured Fighting Vehicle
- CMI Defence and SILKAN join strengths to create AGUERIS, a new player in land forces simulation and training
- Rheinmetall teams with Polish partner to develop new wheeled armoured vehicle

www.army-guide.com

Defence Industry

Tactical Satellite VSAT Communication

AT Communications International is at the forefront of providing new and innovative product developments for satellite communications.

Satellite users now have the option of several portable antenna systems to enable Internet, data, voice and video transmissions:

- Panther
- Panther II
- Hawkeye II
- Cheetah

AT Comms Satellite Solutions Benefits include:

- Quickly-deployable voice, data, and video
- Military command/control or logistic support communications
- Worldwide remote Internet/VPN connectivity
- VoIP or Video-Conferencing

VSAT Data Communication Satellite Portable TerminalThe Panther™ and Panther™ II series of VSAT is a culmination of engineering innovation and customer collaboration that combines the operational simplicity of a BGAN terminal with higher data rate transmission speeds over both commercial and military satellite. These solutions are lightweight, compact, satellite terminals that meet the operational requirements and quality expectations for military command/control or logistic support communications and are rapidly deployable for homeland defense and emergency response communications.

The Hawkeye™ III series of VSAT equipment provide common architecture, light weight and are now even easier to use. Giving users the ability to switch between bands and apertures without having to purchase an additional system, the Hawkeye III series VSATs range in antenna size from 1.2M to 2.4M, and utilize an enhanced outdoor unit (ODU) to eliminate reconfiguration and allow common control. In fact, a simple swap of the feed boom assembly is all that is required to switch between bands.

The Cheetah™ provides flyaway VSAT connectivity for voice, data and video broadcast, with an elliptical reflector that automatically rotates to align with satellite orbital arc for optimum performance. One button auto-acquisition with ViewSAT® terminal software provides rapid system deployment, control and monitoring with minimal training. High-speed access from remote sites provides timely information to decision makers.

For more information, please visit page:

http://at-communication.com/en/tactical-vsat-radio.html

Defence Industry

PUMA infantry fighting vehicle is entering service with Bundeswehr

Following painstaking development work, intensive testing by the country's WTD technical centers, month after month of gruelling operation in conditions of extreme heat and cold abroad, and multiple field trials conducted by soldiers of the German Bundeswehr, the Puma infantry fighting vehicle project has passed another important milestone. The Koblenz-based Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support, or BAAINBw, has now issued the required "Approval for service use" permit. Nothing now stands in the way of the Bundeswehr fielding the new IFV. An added plus: issued with a regular number plate, the Puma is now allowed to operate on public roads.

The Puma will gradually supersede the Bundeswehr's Marder IFV, whose original version first entered service with German mechanized infantry units over forty years ago.

Numerous prerequisites had to be met before the "Approval for service use" permit could be granted. Based on the results of tests and trials, various technical improvements were developed, qualified and successively integrated into the steadily optimized production vehicles. A formal evaluation by the Bundeswehr's Office of Military Vehicles was required in order to obtain the necessary operating permit and roadworthiness certification. Effective 13 April 2015, the German Army Chief of Staff announced formal willingness to accept the Puma IFV. This enabled BAAINBw to issue the "Approval for service use" permit – an important step for the Puma, currently the German Army's largest procurement project.

This means that training of the trainers can begin as planned with an initial seven IFVs. Additional vehicles will follow in coming months. Trainer training will be conducted at the Munster Training Centre through to the end of this year. Set up especially for the Puma, a fielding organization has been established which will conduct initial Puma IFV training of mechanized infantry

companies for a period of three months each at the Munster Training Centre of the armor corps. The fielding organization takes receipt of the vehicles from the manufacturer, outfitting them with special Bundeswehr equipment items before handing them over to the troops to be trained there. Thus, at the end of the three-month training period, the mechanized infantrymen can take their Pumas back to their home bases with them, enabling more troops to familiarize themselves with the new weapons system.

The necessary contracts for maintenance and technical and logistical support between the Bundeswehr and the contractor, Projektgesellschaft PSM GmbH, have been concluded. PSM is a joint venture of system suppliers Rheinmetall and Krauss-Maffei Wegmann, each of which holds a 50% stake in the company. Long-term support for the Puma by the ground forces technology sector in Germany is this assured.

Defence Industry

Rheinmetall and MKEK sign memorandum of understanding for joint cooperation

Rheinmetall and Turkish defence contractor MKEK have signed a memorandum of understanding paving the way for extensive cooperation between the two groups. The partners plan to establish a joint venture in Turkey whose mission will be the development of new forward-looking products in the field of weapons systems and munitions.

Operational management of the new company, to be known as "Rheinmetall MKEK Technologies", will be organized by Rheinmetall. Besides joint development of new products, MKEK will be in charge of manufacturing.

Both companies, globally leading suppliers of defence technology systems and top players in the field of weapons and munitions, bring to this cooperation pact their comprehensive range of experience and expertise. This will create a unique competency centre in Turkey, systematically oriented to the needs of the markets and evolving customer requirements. During the initial phase, work will focus on the development of protection systems and medium-calibre ammunition products.

Future Technologies

BAE Submits Bid for USMC Amphibious Combat Vehicle 1.1 Program

BAE Systems has submitted its bid for the U.S. Marine Corps' Amphibious Combat Vehicle (ACV) 1.1 competition. The company's solution, built from the ground up to be a truly amphibious vehicle, would provide a significant benefit to the Marine Corps' current and future needs.

BAE Systems is teamed with IVECO Defence, which brings additional proven experience having designed and built more than 30,000 multi-purpose, protected, and armored military vehicles in service today. The team's U.S.-built, non-developmental solution has completed thousands of miles of mobility testing and a full range of amphibious operations, including demonstrations of launch and recovery of the vehicle from amphibious ship test platforms.

"Our solution will provide the Marine Corps with a truly amphibious capability, designed into our solution and backed by our more than 70 years of experience designing and building amphibious vehicles," said Deepak Bazaz, director of new and amphibious vehicles at BAE Systems. "Our ACV 1.1 proposal offers a mature, cost-effective solution with growth capacity to meet future Marine Corps needs."

The Marine Corps plans to award up to two initial contracts later this year to deliver 16 engineering, manufacturing, and development prototypes beginning nine months after the contract award.

Robots

Human-robot Teams Compete June 5 at DARPA Finals

WASHINGTON -- In eight days, 25 human-robot teams will compete on the rubble-strewn field of a mock disaster, the robots driving cars, using tools and communicating with their human partners over degraded communication links, just like in a real disaster.

The final round of the Defense Advanced Research Projects Agency's Robotic Challenge, or DRC, will be held in Pomona, California, June 5-6. The challenge is a $3.5 million competition in which human-robot teams from 25 of the world's top robotics organizations try to complete a simulated disaster-response course in the shortest time.

Each robot will have an hour -- under its own battery power and with no help in staying upright -- to drive 100 meters, get out of the car, open a door in a building, close a valve, use a tool to cut a hole in a wall, perform a surprise task, negotiate difficult terrain, exit the building

and climb stairs to finish.

If a robot falls down, the DRC rules say, it must be able to get back up without help of any kind.

Hardest Test for Robots

To observers the robots may seem to move slowly, DARPA officials say, but the tasks they face represent some of the hardest tests of robot software and hardware ever attempted.

During a recent teleconference with reporters, DARPA Program Manager Dr. Gill Pratt said the DRC program began three years ago to improve robot disaster-response capabilities.

"The Fukushima disaster, caused by the earthquake and the tsunami and then the meltdown at the power plant, was a great inspiration for us," he said, referring to efforts DARPA made after the 2011 Japan earthquake and tsunami to send robots whose development the agency had funded to the disaster zones.

"We don't know what the next disaster is going to be but we know that we have to develop technology to help us address these kinds of disasters," Pratt said.

Emergency Response Technology

Among the different disaster technologies, DARPA focuses on technology for responding during the emergency part of a disaster, during the first day or two, he said.

"This is not about, for instance, robotics for [restoring] the environment many weeks or years after a disaster, but rather the emergency response at the beginning," Pratt added.

Robots have been around for decades, working in factories and cleaning floors, so, Pratt asked, why it is it necessary to develop new technologies for a disaster?

"The real answer is that when you have a disaster, one of the first things that occurs is a degradation of communications," Pratt said.

Degraded Communications

During the DRC finals, observers at the public event will see 25 robots that are impressive mechanically, he said.

"Some of them look like an imitation of a person, some may look like some kind of four-legged creature –- there are all different shapes and sizes," Pratt said, adding, "but that's not the most important part of the technology we're trying to improve."

The critical goal is to improve how people and robots work together when they're separated by a significant physical distance and the communication link between them is severely degraded, he said.

During the finals, Pratt said, "we will turn off communications for a significant fraction of a minute very often during the challenge."

Beyond Physical Robots

"When you think about the DARPA Robotics Challenge, try to think beyond the physical robots that are there and focus on this very sporadic, very degraded communication between people and machines working together as partners," Pratt said.

Because of degraded communications, the robots must have enough intelligence, for example, to open a door on their own rather than having the human partner tell the robot what to do every second.

But the human partners need tools as well, he added, "to give them situational awareness as to what is going on in the danger zone where the robot is operating."

Half or more of the software's computer science, or artificial intelligence, does not go into the robot but into the human interface -- the computers that human operators use to visualize what's going on where the robot is, despite disrupted communications, Pratt said.

High Risks, High Rewards

All that computer software, he said, "is being used to help the effectiveness of both partners in this collaboration –- the human partner and the robot –- do something effective to mitigate a disaster during the first day or two."

Pratt says observers will see a substantial fraction of the robots have difficulty as the 25 teams run through the course.

"We do that on purpose," he said.

"DARPA takes high risks for high rewards," he added, "and that means we also have a lot of challenges that we expect our performers to have."

The challenge is quite hard, Pratt said, " ... [but] we are expecting, or hoping at least, that some of the best teams will manage to do most if not all of the tasks."

■

Defence Industry

Rolls-Royce To Supply MTU Engines For British Army's Scout SV Armoured Fighting Vehicle

Rolls-Royce has received an order from General Dynamics European Land Systems for the delivery of 589 MTU Series 199 diesel engines for use in the new SCOUT Specialist Vehicle (SV) for the British Army.

The contract value is approximately €80m and will be the first time that MTU engines have been utilised in British Army platforms. The vehicles will be delivered by General Dynamics UK in six variants and will form the backbone of the British Army's future fleet of Armoured Fighting Vehicles. Delivery of the engines will start in 2016, and the last engines will be delivered in 2022.

Dr Ulrich Dohle, Rolls-Royce Power Systems, CEO

said: “We are delighted that our MTU engine has been trusted for this important project. This order once again proves that when it comes to performance and reliability, the Series 199 engine is benchmark in its power range.”

The 8V 199 TE21 engines each have a power output of 600 kilowatts and are the most powerful engines of the series. Engines of Series 199 have established themselves in various armoured vehicles, among them the Austrian ULAN and the Spanish Pizarro vehicles. MTU’s scope of delivery includes the cooling system and two generators with 550 Amperes with each engine.

MTU is part of Rolls-Royce Power Systems within the Land & Sea division of Rolls-Royce.

Training And Simulators

CMI Defence and SILKAN join strengths to create AGUERIS, a new player in land forces simulation and training

CMI Defence SAS, the French subsidiary of CMI group (Cockerill Maintenance & Ingenierie), a leader in multifunctional, high-effect weapon systems for light and medium weight armored vehicles and a provider of technical and training assistance, and SILKAN, French leader in virtual simulation and real time interconnection applied to critical systems, create together a joint venture named AGUERIS. This company aims at becoming a new leader in the field of land forces simulation and training.

The two companies write a new chapter of their common history. Indeed, SILKAN and CMI Defence have been working together for several years in order to design, develop and deploy a new simulator solution for turret crew training. This collaboration enabled the development of a world premiere: the first turret embedded training simulation, using the real equipment connected with an instructor station as the simulator.

Created on April 30 2015, AGUERIS ambitions to become a reference player in the field, with an extensive offer in technical and tactical training simulators for the land forces, and the development of innovative technological products in modeling and simulation.

“AGUERIS will enable CMI Defence to remain present alongside our customers, throughout the lifecycle of our products, with a comprehensive and competitive range of products and services associated with our weapon systems portfolio” says Jean-Luc Maurange, Executive President of CMI Defence.

For SILKAN, and his Chairman and CEO Franзois Guйrineau,”the alliance with an industry group the size of CMI Defence will allow to maintain the lead already acquired by SILKAN’s team in the field of land forces simulation, offering a range of reference products internationally. Technological partnership with AGUERIS will strengthen SILKAN’s position on its own markets, especially simulation and training solutions for aeronautics”.

AGUERIS is based near Paris, in Meudon (France). The members of its management committee originate from Defense and Training and Simulation. Bernard Clermont will be AGUERIS’ Chairman and CEO, Emmanuel Chiva will be deputy GM and chief strategy officer and Benoit Rolland is appointed as Chief Operating Officer. AGUERIS is already engaged on a number of projects ensuring its rapid development.

Defence Industry

Rheinmetall teams with Polish partner to develop new wheeled armoured vehicle

Rheinmetall is set to play an important role in developing a new wheeled armoured vehicle for the Polish armed forces. Rheinmetall MAN Military Vehicles GmbH (RMMV) has just signed a cooperation agreement with Polish defence contractor Polska Grupa Zbrojeniowa SA (PGZ) and its subsidiary Obrum sp. z o.o. The centrepiece of the cooperation agreement is a new amphibious vehicle for the Polish military.

Rheinmetall thus continues to bolster its strategic position as a major European supplier of military wheeled vehicles.

Specifically, Rheinmetall and its Polish partners have agreed to develop a state-of-the-art 6x6 wheeled armoured vehicle, oriented to the requirements of the Polish Army’s LOTR (light armoured reconnaissance vehicle) procurement programme, and systematically designed to meet Poland’s – and other nations’ – future military needs.

In the words of PGZ Chairman Wojciech Dabrowski, “Signing this contract with RMMV makes us an equal partner of a globally leading defence technology enterprise. Propelled by the success of the Rosomak armoured transport vehicle, we launched this ambitious project, which will result in a new wheeled armoured vehicle.”

Design and development of the LOTR will take special account of experience gained in current asymmetric conflicts, the first vehicle of its kind to do so. It is slated to replace the Soviet-era BRDM-2 still in service with the Polish Army.

The new vehicle will benefit from the partner companies’ combined expertise in the world of wheeled armoured vehicles and military system solutions.

Fully amphibious, the LOTR will feature a high level of protection and an excellent payload-to-total weight ratio. With an authorized total weight of up to 20 tonnes, the new vehicle will have a carrying capacity of 3.5 tonnes, opening up a wide variety of options during

reconnaissance missions and other military operations.

Already contemplating the next step, RMMV and PGZ (or rather Obrum) plan to create a sales joint venture, laying the groundwork for marketing the vehicle – and possible derivatives – internationally.

"We see this development contract as an important first step in a highly promising cross-border strategic alliance in the field of military wheeled vehicles", declares Pietro Borgo, managing director of RMMV and member of the executive board of Rheinmetall Defence, adding that, "in forging this alliance, we're also acknowledging the need for intensive defence cooperation in Europe".

"I'm convinced that RMMV and its new partner will succeed in developing the world's most advanced 6x6 wheeled vehicle in the under-20 tonne weight class. It's an ambitious goal, but our two companies have the necessary expertise. And because the vehicle offers the perfect technological base for cooperating with partners around the world, we also see excellent opportunities for marketing the LOTR outside of Europe", notes Mr Borgo.

About the participating companies:

A Polish holding company, PGZ has a stake in several of the country's defence contractors, including a roughly 90% interest in Obrum. Its broad-based product portfolio makes it a major supplier of the Polish armed forces.

Obrum is a research and development centre founded in 1968. It plays a material role in the development and production of various weapons systems oriented to the needs of the Polish military.

RMMV is the Rheinmetall Group's competency centre for logistical and tactical wheeled vehicles. A joint venture of Rheinmetall AG and MAN Truck & Bus AG, RMMV is a top supplier of complete military wheeled vehicle solutions.