



MARKUS: Serving the Three Block War

Elisabeth Behm, Project Manager MARKUS at the FMV, explains the programme's highly incremental approach and near term acquisitions

"We have a different approach compared to other Soldier Modernisation Programmes," argues Elisabeth Behm, Project Manager MARKUS at the FMV. "We think we have much good equipment already for the soldier and we want to keep that good equipment. In our modernisation programme, we will describe what we need to replace and what we will need to increase the capability of the soldier."

"MARKUS is divided into two parts but working together," explained Behm. "One part is the FMV and the other part is within the armed forces. They take care of the users requirements while we co-ordinate procurement because there are different procurement projects and different subsystems in different departments."

C4I

"We need to increase command flexibility", explained Behm addressing MARKUS's place within the network. "We have the Personal Role Radio (PRR), the Group Radio and we also have a hand held GPS but it's not like a C4I system. That is why we need to improve command flexibility."

Improved communications as part of this is the more immediate priority in C4I modernisation. Behm explained, "Right now we are doing trials for the next generation of Group Radios and there will be a procurement for that in 2009." Behm added, "There is also a C2 project which we are starting right now, with procurement in 2011."

Elements of the C2 systems are already in place. Sweden has opted for and fielded the Selex

Communications H4855 PRR, designated the RA 1031 Group Radio and this is in use with the Swedish part of the Nordic Battlegroup 08.

As is typical, the PRR is offered with the standard ear cup, Patrol headset. Sweden also wanted to provide Active Noise Reduction technology to their dismounted troops. As a result, the Peltor ComTac Xp was fielded, combined with a unique cheekbone microphone and operated with the PRR and known as the H-Mikrotrfn RA 1031. The system, which has a talk through capability, provides noise attenuation of 28dB with integral battery power for 250 hours of operation.

At a platoon level, Sweden has opted for a PMR-based solution with the 5W Motorola GP 328/RA 1183 hand held and the 25W vehicle mounted GM 3688/RA 4183 Platoon Radios. The system is configured to offer a simplex, voice only talk through capability with the PRR via switchpack or other means. The system offers 16 channels and a range of 3-5Km.

Sweden has opted for dual civil/military solution for geo-location. At the highest end, Sweden operates the Rockwell Collins DAGR designated GPS 08. In addition, the Garmin GPSMAP SPS receiver has been adopted and designated the Handheld GPS, supporting single frequency L1,C/A signals.

CLOTHING AND PROTECTION

Maria Larsson, Product Manager, Personal Equipment at the FMV explained, "We think all the time about modernisation of the soldier's clothing but what is also ongoing now is the procurement of a new body armour system or Personal Ballistic Protection Equipment System (PBPEs)."

This programme has had a history of 'stop-start', as she explained, "We have already been out once with



Sweden has opted for and fielded the Selex Communications H4855 PRR, designated the RA 1031 © AJB

► a procurement but that was stopped. We received a number of tenders in June, but none of them were able to meet the requirement we had. We are going out again in December 2008- Jan 2009 when we will begin a new procurement.”

Larsson outlined the key differences for the PB PES over Sweden's legacy systems; “It is a more modular system. It will have concealed protection, outer protection and also riot equipment will be part of the system.”

As to the fielding schedule, for PB PES the FMV is being very open. “We want to field it as soon as possible. We will look at how the procurement develops.”

Continuing operations overseas, not least in Afghanistan has clearly allowed Sweden's military to exploit its extensive knowledge of operating in the extreme cold. Another less used capability, despite Sweden's diverse experience in international peacekeeping, is operating in hot environments.

Sweden's field Uniform 90 TR is offered in either a beige or green, four colour pattern using printed camouflage and uses a ripstop material in a 88 percent cotton, 12 percent PA mix. The system also offers IR-based camouflage and is treated with Permethrin.



Under the PB PES programme, riot equipment is being integrated within a modular personal protection vision © AJB



The AK5 has been radically overhauled to enable MARKUS' requirement © AJB

To reduce temperatures felt by the soldier, Sweden has introduced a netted T-shirt with a mix of 50 percent modacrylic and 45 percent cotton. This blend provides protection against melting and burning and is designed to transport moisture away from the body. The 90 TR BE ensemble also uses socks which from the upper foot and leg upwards, uses rib knitted, thin material for cooling.

LETHALITY

In lethality terms Sweden has been busy. Rather than acquire a new weapon system, the existing 5.56mm FNC assault rifle, known locally as the AK5 has been heavily modified to improve weight and ergonomics as well as adding rail mounts for new sights and equipment. A total of 40,000 rifles are being converted by Saab Bofors Dynamics and this is due to be completed by 2011. The resulting AK5C, which weighs 3.8Kg has a Mean Round Between Stoppages of 2000 rounds. The rifle sports a number of new features such as an improved flash hider, shorter barrel at 350mm, ambidextrous selector lever, automatic bolt catch, transparent plastic magazines and new shoulder stock. The system uses a new MIL-STD 1913 rail and the foregrip has a number of cut outs for pressure switches and cables on both sides of the barrel.

In terms of surveillance, the new small arms sight for the AK5C is an Aimpoint AB 1x1 red dot solution which was adopted in 2003, replacing the UK-sourced SUSAT L9A1 tritium sight. Deliveries were completed in 2006.

To further improve lethality, Sweden is investing in a low-cost, lightweight and add on Fire Control System (FCS) for both 40mm underbarrel and automatic grenade launchers as well as the Carl Gustav 84mm recoilless rifle. A development contract was placed with Aimpoint in 2005, leading to its BR8 design, following earlier studies and assessment of off-the shelf FCS. Deliveries of the prototype took place in late 2008.

The system works by first aiming and measuring range, the FCS then makes the firing calculation and then aligns the weapon at the required angle using a moving cross and red dot for aiming. The requirement is to fix the system on a MIL-STD 1913 rail and have no moving parts. The system has a high contrast display and is required to have a battery life of one week and weigh below 1Kg.

At the other end of the spectrum, Sweden is also forging ahead with its Non Lethal Weapon programme. A two-step approach is being adopted. First, impact ammunition is being acquired both for 12 gauge pump-action shot gun and a 40mm round for underbarrel grenade launchers. This will enable engagement of rioters at up to 20m and 50m respectively. The next stage will be the adoption of hand held paper spray. ■