



COMFUT prepares for platoon tests and final report in 2009

Spain's COMbatiente FUTuro programme maximises individual system capability for thorough assessment of needs

Spain push into soldier modernisation is through the (COMbatiente FUTuro, COMFUT) programme. It's programme leader is a veteran infantry officer, Col. José Ramos Barrera, and collaborating closely with him is Angel Pérez Martín-Nieto, a former infantry officer who works as consultant for local firm NTGS, being appointed to act for the Ministry of defence Ministry of Defence's Procurement Office (Dirección General de Armamento y Material) or

DGAM to assist technically in order to drive modernisation forward.

HISTORY

The programme began in 1996 as a series of studies to define the types of capabilities that should be acquired. Today's programme comprises three, well defined phases. The first phase was the feasibility phase, launched in 1999. This was followed by the definition phase which began in 2001 and completed in 2004.

Martin-Nieto explained, "We finished in 2004 and waited two more years for the programme to move to the design and development phase and it is this phase that we are currently in now."

The programme was contracted for the design and development in October 2006. This was awarded to EADS Defence and Security with partners Indra Sistemas, Iturri, Amopack SL, Fedur and GMV. The scope of the design and development phase is very limited Martin-Nieto explains, producing only specific prototypes for a platoon sized unit.

This phase is due to complete in 2009. When the design and development phase is completed the goal is to begin first phase production of COMFUT ensembles from 2010-12, initially covering 3000 systems with an in-service goal of mid 2011. This will be followed by Second Phase production, covering a further 6000 system.

Under the current design and development phase, the EADS led team are responsible for delivering 36 prototypes. An initial 12 COMFUT systems were delivered at the end of 2007 for initial testing in 2008. Martin-Nieto explained, "In early 2009 they have to provide us with a specific system and then proceed with the validation phase for user trials and then produce a final report in December 2009." He added through that there had been a six-month delay because of problems with the technology.

COMFUT has defined its overall capability in seven different subsystems; Armament, Power Supply, Sensors, C4I, Survivability/Protection, Sustainability and



Spain's COMFUT programme has given each soldier every possible functionality for the purposes of trials © EADS

► Preparation. The last comprises training, simulation and also vehicle integration to ensure that synergies with COMFUT specifically covering combat support, power supply and logistic support can be achieved effectively.

The Armament element is being provided directly by the MoD. Martin-Nieto said, "We don't have much to do with the armament at the design and development phase. That is based on the Heckler and Koch G36-E and the contract does not foresee any possibility of replacing anything of it so far. We are currently however, applying to make a small modification of the mounting rails and buttstock on the weapon to improve ergonomics."

The Power Supply subsystem covers both power source and power conditioning unit, which is being supplied by Amopack using battery technology that has been provided by Saft.

Batteries will provide the main power source and the programme office have noted no specific problems although Martin-Nieto commented, that there was still some work to be done to reduce the weight and volume of the batteries. Addressing the issue of fuel-cell technology Martin-Nieto explained, "We have used specific prototypes, but not as the main source of power; only as an alternative source. Every single soldier will have fuel cells to recharge their own batteries, or to directly feed the system in case of need, for instance. The main power source are batteries but what happens if you are in the desert for ten days? You can then disconnect your batteries and replace them with fuel cells as an alternative."

"We are now waiting from proposals from Amopack to provide us with a response and answer to the fuel cell

solution. We have tested fuel cells from a Spanish company who are making a big effort to become the provider but there has to be a competition to offer us the best solution on the market."

COMFUT's power requirement is to be able to cover a 24 hour mission. Martin-Nieto noted, "Operational analysis shows that within that typical mission the system will work continuously for seven hours, and that at some times, the system will be switched off."

Batteries on weapons are also rechargeable by fuel cell. While these batteries are different, they have the same connectors and charger as the main power supply subsystems and can also use fuel cells to recharge.

SENSORS

Sensors are contracted by EADS to Indra Sistemas. Martin-Nieto outlined the task being undertaken. "We asked for all known functionality on the weapon, everything you can imagine, including target designation, is in the prototype we have right now. The important thing is that it works and there aren't many problems so far with the system. Improvement in ergonomics are the only thing missing. Industry now has to provide a new design to make the final product more ergonomic, so there are some changes in the design aimed mainly to reduce volume and weight."

C4I

The COMFUT programme has opted for the ITT SpearNet radio. A full data capability version, developed specifically for this programme which was delivered at

the turn of year in preparation for trials using 12 systems in early 2009.

The modifications comprised a number of small hardware modifications. "The radio has to both work independently or with its own power supply although normally it would work with the system power supply. Also, because we use different frequencies, we want to use 1.2-1.4GHz, which is a new range for the radio, because of conflicts with radar frequencies in Spain."

One of the features of the programme is that every single soldier in the platoon has the full capabilities of the system. Martin-Nieto commented, "It is a top down approach. For the specific prototypes all the soldiers in the platoon have the same hardware. After user trials we will decide from an operational point of view, which components and modules are not useful to the soldier so we can make a better distribution to the soldiers, but if we consider that every soldier needs that component or module then he will keep it. If you don't test with everything first, there will always be doubts."

The weapon and sensor system takes approximately 45 seconds to start-up after the BIT process, with the C4I module taking less than 60 seconds to provide communications and situational awareness.

"The top down approach has been very demanding in terms of technology and this is perhaps the main reason for the delay in the programme. Integration is a real problem. Integration is the key word, how we provide every single function and integrate every component in a single soldier system to perform that function." ■



Amopack is providing a fuel cell supplement to battery power © EADS