As demands on the USAF's drone fleet grows, and as missile lethality increases, the Phantoms are being expended at a growing rate. In many tests the missile's warhead is replaced by telemetry equipment, but even so the kinetic energy of a direct hit is often enough to cripple the target irrevocably.

However, one should consider that the more aircraft there are in the air, the more data flows there are. The potential risk grows exponentially with the number of airborne aircraft that need to be recovered in case a telemetry site goes down. The procedure also dictates that the drone with the lowest fuel is the first to be recovered, in which the drone normally takes the mid-field cable. It then takes about half an hour to reset the cable and then land the second aircraft. With six aircraft in the air, this would be practically impossible.

Recent programmes

In recent times Det 1 provided aerial targets for tests with the F-22 from the Combined Test Force (CTF) at Edwards. The Raptor flew to WSMR to take air-to-air missile shots against a QF-4 over the range before returning to Edwards. The CTF's control centre made use of a satellite link to gather all the telemetry information in real time. The test supported the Developmental Test (DT) phase of the F-22 Raptor, which was completed in late 2004 and was concluded with a live shot at a Det 1 QF-4 on 20 December.

Further tests with the Raptor involving Det 1 were undertaken in June/July 2005, with operational test (OT) shots performed by the 422nd Operational Test Unit at Nellis AFB checking the Raptor's systems in an operational (combat) environment. The set-up was essentially the same as that employed during the Developmental Tests..

Another recent high-profile event was the latest Weapon System Evaluation Program (WSEP). WSEPs normally use the over-water ranges at Tyndall. However, between 25 April and 6 May 2005, six F-16Cs from the 55th FS/20th FW and 18 F-15Cs from Elmendorf (19th FS) came to Holloman for the base's first air-to-air WSEP in 12 years. The participants not only flew Dissimilar Air Combat (DACT) manoeuvring training, but were able to take live shots as well.

A WSEP is aimed to give a line pilot the chance to actually shoot a missile and allows evaluation of not only the pilot, but also the maintenance and ordnance team. At the same time, data points from the missiles are gathered to verify weapon system performance, determine reliability, evaluate capability and limitations, identify deficiencies and, if necessary, recommend corrective action. Verifying missile envelopes and evaluating capabilities and limitations helps to determine future requirements.

For the mid-2005 WSEP, apart from manned Phantoms acting as strikers to be intercepted, three QF-4 missions were planned involving two or three drones per period. In total 21 missiles were fired at the drones, destroying three QF-4s by firing various models of the AMRAAM and AIM-9M. For this WSEP, the drone aircraft were configured differently because of different capabilities; some were wired for ECM, some were prepared for other special equipment like different flare pods.

Lt Col Hainline explains: "The customer supplies the pods – in this case Tyndall brought the ECM and flare pods. In many test instances we don't even know what the pods do and only need to switch them on." The decision to return to Holloman was based on the objective of operationally testing the missiles in an over-land environment, as opposed to over water at Tyndall AFB.

According to Hainline, "So much is done over the water, it is said that if the Air Force would fight a war over the water, it would know exactly what was going to happen. However, most wars aren't fought over the water, so we want to get background clutter and ground return, in combination with some low-altitude practice, to evaluate the missiles and train the aircrew in a different environment. Hopefully the return of the WSEP to Holloman is the first one of many and it will become a yearly event."

The unit's highest operational tempo is in the autumn when Det 1 undertakes a mission called 'Japanese Hawk'. For the last five years, the Japanese Self Defense Force has brought Hawk missiles and personnel for an operational readiness inspection. Given the limited space available in Japan, they do this in New Mexico. Det 1 flies against the Hawk batteries, simulating incoming targets. For about 11 weeks, Det 1 flies a four-ship formation every Tuesday, requiring all four of Det 1's pilots.

In another recent project, the US Army requested Det 1 to fly against its big radar balloon, which have been developed for the Drugs Enforcement Agency (DEA), to simulate incoming fast-moving aircraft.

Phantoms forever?

According to the latest forecast, QF-4s will be converted until FY 2012. This date is based on the number of available aircraft at the AMARC, speed of regeneration and conversion at BAE Systems, and the annual expenditure rate due to actual kills during the various tests. The latter obviously depends on the number of test programmes, and the number of Kill Authorizations (KA) requested and approved by the different services for these programmes. Of course, Phantom numbers also depend on how many survive kill attempts.

A Kill Authorisation means the official approval by the Test & Evaluation directorate to

Det 1's immaculate 'SEA' jet cleans up after take-off. As well as its missile test/evaluation obligations, Det 1 also provides aircraft for more traditional target facilities tasks, notably providing aircraft for Japanese Hawk SAM operators to train against during an annual readiness exercise.