

ACOUSTIC TARGET TYPE 541 (AMS Variant)



This precision electronic target provides developers, manufacturers and trials and testing organisations with a cost-effective means of checking the performance of weapons and ammunition by measuring the co-ordinates of shots passing through the target area. Shot positions are instantaneously displayed on a graphical representation of the target area together with coordinate data and a running total of shots fired. On completion of each firing test a permanent record of the results can be stored on disk or printed for subsequent analysis. Calibres from 4mm up to 150mm can be accommodated giving the capability of measuring the performance of the full range of weapons from small arms to tank guns provided the projectile is travelling in excess of Mach 1.3 at the target.

The target replaces paper, canvas or wood witness targets and thus remove the problems associated with:

- The need for repeated access to the target area for the retrieval of information.
- The time and effort involved in the erection and renewal of witness targets, especially large ones.
- The loss of data caused by the failure to measure all shots because of overlapping of rounds, particularly in the case of automatic fire.
- The errors made and time taken in manual measurement and analysis of shots fired.

The elimination of these problems improves efficiency and safety, saves time and effort, and therefore saves money.

The target can be configured into systems with a single processor addressing up to 12 targets by line. The Processor Type 663 also addresses up to 12 Type 541 targets via a 2km radio link operating at 458MHz. The radio link allows the trials officer to select the positions on the range that best suit the aim of the trial rather than being confined to the location of cable access points. This target is equally suitable for indoor and field trial use.

The Acoustic Target type 541 consists of a pair of sensor arrays in a delta format, mounted with a set distance between them, which sense the shockwave generated by the projectile. The signals generated by these sensor arrays are used to calculate the position of the shot with respect to the target. The arrays are mounted in a protective case with a flip-down lid and are installed relative to the witness target. The Delta Acoustic Target (DAT) should be protected from direct fire. The DAT will detect all projectiles travelling in excess of Mach 1.3 at the target plane at rates of fire of up to 9000 rounds a minute and will accurately locate and evaluate single or multi-shot impacts on targets without the need for marking personnel or other witness targets.

In a system, the data recorded by the Acoustic Target is fed from the target to an MSI Processor Type 663, a PC compatible unit, for storage, display, analysis and printout. The Type 663 is supplied with a comprehensive user-friendly software package, which gives a graphical display of the shot locations and provides a range of mathematical and statistical calculations that can be applied to the shots. Once installed, the systems require little maintenance and a self-generated functional check is carried out automatically at the beginning of each session.

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APPLICATIONS

Use as an Automatic Marking System for training purposes

The visible target is normally the user's target outline which can, if mounted on a suitable mechanism, be caused to pop up and down under Range Processor or Firing Point Monitor control. The picture above shows a portable DAT, but on a fixed range, the delta arrays may be mounted directly to the ground. The calculated position of the shot is transmitted down the range cabling to the Range Processor from where it is also sent to the FPM for display to the firer.

Use as a Precision Target for Ballistic Analysis purposes

Using substantially the same hardware as the AMS, the control software is considerably different. The user may collect statistical data and integrate with Pressure, Velocity and Ballistic Analysis systems

SPECIFICATION

Active Target Area	Depends on calibre. Up to 5m by 5m for 5.56mm, up to 20m x 20m for 30mm.
Measurement accuracy	±5mm in still air conditions for 2m by 2m area ±20mm in still air conditions for 10m by 10m area
Projectile velocity	Mach 1.3 minimum to Mach 5 at target
Projectile calibre	All supersonic natures
Rate of fire	Up to 9000 rounds per minute
Output data	True X Y Cartesian co-ordinate data
Power	12v d.c. or 50v a.c. Safety Extra Low Voltage
ENVIRONMENT	
Humidity	The unit is fully sealed against the ingress of moisture
Operating temperature	-10 °C to +60 °C
Rain	The system operates in light rain
Wind	Fluctuating wind at the target affects accuracy
OPTIONS	
Radio link	Using transceiver Type 573
Pop-up aiming Mark	A mechanical device that may be remotely controlled
Static aiming mark	A bracket that locates in the same mounting as the sighting piece (supplied as standard), and the pop-up aiming mark.