

Abstract

A non destructive weapon against armoured vehicles

P. Steardo and M. Leonardi, Oto Melara, La Spezia Italy

The main object of the present research the study of a new system, able to render an armoured vehicle un-operative by scattering the whole surface with a chemical substance (a foam) which prevents the use of guidance systems and external sensors (optical/IR systems) by the crew.

The "blind" vehicle is no longer operative even if no damage has been caused to the vehicle itself and to its crew. The foam is carried in proximity of the vehicle by means of a calibre 120 mm artillery ammunition.

The main technology of this non lethal system is placed in the proximity fuse, which must be capable of detecting stationary vehicles such in advance that the spread substance, whose centre of gravity moves along the same path of the projectile, can reach the front part of the vehicle, where the optical sensors are generally placed. The case of moving vehicles is an even more favourable event which can be easier managed by the system.

Oto Melara is developing a new smart fuse able to detect stationary armoured vehicles hidden or in ambush, in a terrain scenario.

This research is also supported by the Italian MoD and experiments so far performed have demonstrated the possibility of placing a miniaturised microwave system in a 120 mm calibre fuse. The signal received by this system is processed with algorithms based on the neural networks. The first results obtained have demonstrated that it is possible to detect a stationary object placed in the land clutter with enough advance to be able "to paint it".