EXPERIMENTAL AND NUMERICAL INVESTIGATIONS OF NEW PROTOTYPES FOR LOW COLLATERAL DAMAGES AMMUNITIONS

K. Woirin[1], F. Vermeersch[2], L. Chaffois[3], C. Collet[1], J. Moriceau[1]

[1]Airbus Safran Launchers (ASL), Le Bouchet Research Centre, 9 rue Lavoisier, 91710, Vert-le-Petit, France;
[2]MBDA France, 1 avenue Réaumur, 92358 Le Plessis Robinson, France;
[3]EURENCO Sorgues, 1928 Route d'Avignon, 84275 Vedène Cedex, France

ABSTRACT

In collaboration with MBDA France and EURENCO, Le Bouchet Research Centre of ASL has characterized three different designs of low collateral damages prototypes containing a radially or an axially arrangement of explosive and inert charges, in comparison with a reference charge. A preliminary analysis with AUTODYN® has been conducted to predict the velocity and the fragments size. Prototypes were manufactured and experimentally characterized (fragments recovery systems, witness plates, X-Rays, high speed and ultra-high speed visualizations). Finally, numerical simulations have been conducted with OURANOS® code taking into account high explosives reaction kinetics.