

## **BLAST WAVE AT THE OPEN-END TUBE: SMALL SCALE EXPERIMENT AND PREDICTABLE CHARACTERISTICS**

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In order to analyse in detail the propagation of a shock wave stemming from a gun fit out with a muzzle brake in free air, it is necessary to produce experimentally a lot of shock waves. This possibility is not conceivable because the scale tests necessitate an implementation of considerable resources and so are very expensive. That is the reason why we set up an experimental mounting in Lab which simulates the physical phenomena. The small scale experiments produced a shock wave have been clearly validated <sup>[1][2]</sup> as a gun firing with the difference that there wasn't a muzzle brake. The set-up was constituted either by an half-tube put down on a surface where incident overpressures were measured or a tube located at a height H of the ground where reflected overpressures were recorded. A pressure plotting on a plane surface situated to the distance H of the generator is usually performed and a methodology to evaluate the shock wave incident overpressure is established in ref. <sup>[3]</sup>. So the values obtained can be compared with an indirect method <sup>[4]</sup> to an universal diagram <sup>[5]</sup>. Now, a new technical element is introduced in the experimental set-up, it's a muzzle brake.