

# **ORFEUS GPR: a very large bandwidth and high dynamic range CWSF radar for non-destructive utilities detection**

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A very large bandwidth continuous wave step frequency (CWSF) radar has been designed and tested in the framework of a R&D project named ORFEUS (Optimised Radar for Finding Every Utility in the Street) supported by Sixth European Framework Programme with the aim to increase the detection capabilities of GPRs equipments currently employed for underground mapping in urban context. In order to achieve this goal, innovative electronic equipment has been designed and realized: such equipment is able to operate ultra wide bandwidth, ultra fast scan and very high dynamic range.

In order to proof such capabilities, an extensive measurement campaign programme has been carried out along the Europe. In such activity, measurements have been collected together with two commercial pulsed GPR in order to compare results.

In this work, after a description of Orfeus GPR capabilities and characteristics, the results coming from such measurements campaign will be presented and compared in order to demonstrate the in-field capabilities of the new radar equipment.