Name: Joan Cardona

Position: Technical Manager

Company name: AV Ingenieros

Web url: www.avingenieros.com

Nature: SME

Country: Spain

Expertise: Noise & Vibration control and modelling

Contact details:

C/ Joan XXIII, 23 (local).

08173 St. Cugat del Vallès

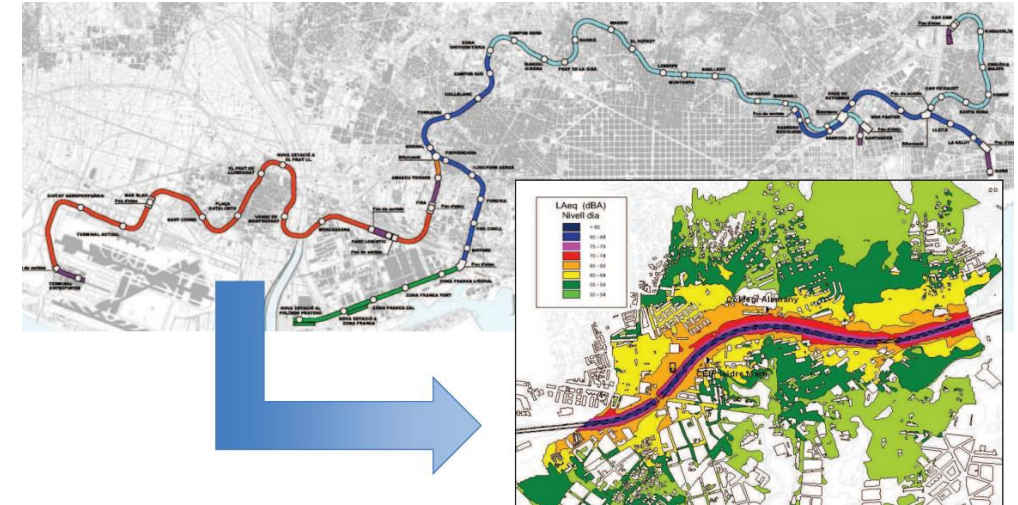Telf. 93.674.31.91

info@avingenieros.com

Ground vibrations

Project title: -

Topic: S2R-OC-CCA-01 2020: Noise and vibration Call

Project description:

Development of an accepted procedure to predict railway-induced vibration levels into buildings.

MATLAB toolbox for the prediction of railway-induced vibration and reradiated noise levels into buildings according to ISO 2631-2:2003 and other national European regulations. Software skills:

- Flexible and computationally efficient semi-analytical model considering vehicle, track, tunnel, layered ground and building.
- Track model to afford different track types: ballasted track, slab track, floating slab track and others.
- Available infrastructure cases: at-grade, circular tunnel and cut-and-cover tunnel.

Ground vibrations

Project description:

INPUTS:

- Database from experimental measurements

- Parameter values

  • Vehicle data: suspended/not suspended weight, number of wheels, speed, wheel roughness, etc..

  • Track data: rail mass, Young modulus, damping and inertia, rail roughness, etc…

  • Soil data: Mechanical properties of each layer and their thickness.

  • Building data: Geometrical and mechanical parameters of columns and floors

OUTPUTS:

- Noise & Vibration frequency spectra (1/3 octave band & narrow band)

- Maximum Transient Vibration Value (MTVV)

Ground vibrations

Current consortium:

Organisation	Skills	Role
AV Ingenieros	SME expert in vibration prediction projects	Validation manager
LEAM-UPC	Research centre with deep knowledge in vibration modelling	Vibration & re-radiated noise modelling

Profile of partner sought:

Organisation	Skills	Role
ISVR*	Research centre with deep knowledge in vibration modelling	Project Manager
-	Optimisation of simulation codes Implementation of simulation into a user-friendly interface	Software developer
-	Results' geographical visualisation	GIS expert
-	Deep knowledge in soil characterisation and vibration propagation through it	Soil modelling
-	Building dynamics	Building modelling
Strukton Rail* Deutsche Bahn*	Rail operator	Access to validation measurements

* Tentative