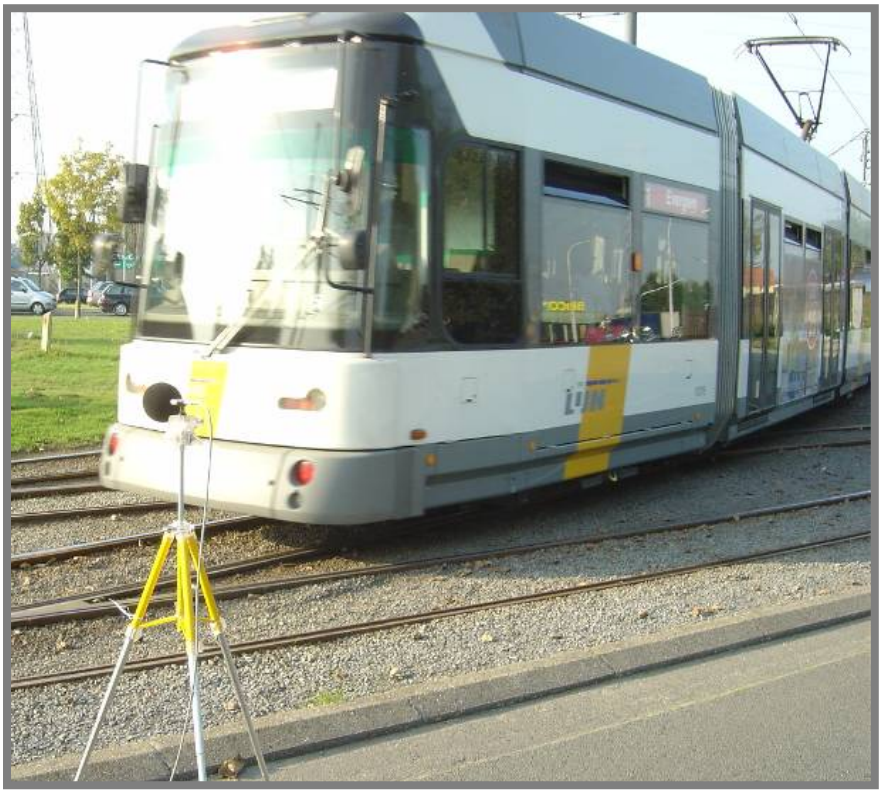
ΕΡΓΟ : **ΕΥΡΩΠΑΪΚΟ ΠΡΟΓΡΑΜΜΑ QCITY (QUIET CITY TRANSPORT), 02/2005-01/2009**

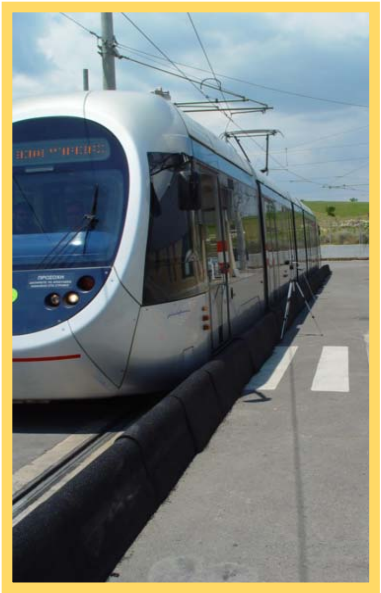
ΦΟΡΕΑΣ : ΕΥΡΩΠΑΪΚΗ ΕΝΩΣΗ - 6th RTD FRAMEWORK PROGRAMME

ΠΕΡΙΓΡΑΦΗ : Στόχος του Ευρωπαϊκού Προγράμματος Qcity είναι να ενσωματώσει την τεχνολογία των συγκοινωνιακών υποδομών για τον αποτελεσματικό έλεγχο οδικού και σιδηροδρομικού θορύβου λαμβάνοντας υπόψη τη μείωση του θορύβου στη πηγή τόσο σε επίπεδο οχήματος όσο και επίπεδο υποδομών.

Παράλληλα εξασφαλίζει στις Τοπικές Κοινωνικές τα εργαλεία για την σύνταξη Στρατηγικών Χαρτών Θορύβου (Σ.Χ.Θ.) Σχεδίων Δράσης (Σ.Δ.) και να τους παρέχει ένα κατάλληλο εύρος πιστοποιημένων τεχνικών λύσεων για εντοπισμένα προβλήματα σε συγκεκριμένες πόλεις. Δίνεται ιδιαίτερη έμφαση στην χαρτογράφηση θορύβου και την εφαρμογή ανάλογων λύσεων καθώς και τις πιθανές τους επιπτώσεις.

Στα πλαίσια του προγράμματος διαμορφώθηκαν ιδιαίτερα ελπιδοφόρες λύσεις οι οποίες σχεδιάσθηκαν με λεπτομέρεια για συγκεκριμένα επιλεγμένα προβλήματα περιβαλλοντικού θορύβου και δονήσεων με έμφαση στην οδική κυκλοφορία και τα αστικά Μέσα Μαζικής Μεταφοράς σταθερής τροχιάς (Τραμ Αθηνών, Αμβέρσας, Γάνδης, Βρυξελλών κλπ.)

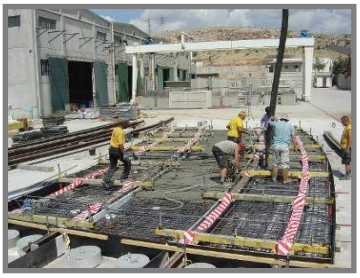


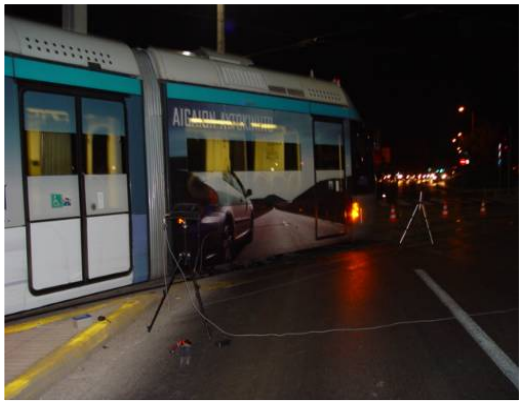


QCity Work Package (WP5.2)

Development & implementation of a prototype "Quiet tram track" elastically encapsulated in a prefabricated concrete slab, at "Voula extension" of the Athens Tramway line in Glyfada area of greater Athens.
The relevant prototype research, realization & evaluation included the following internal phases:

- Reference campaign of squeal noise measurements & 1/3 octave band analysis at an existed curved track in Athens Tramway network i.e. Diadochou Pavlou str. Tram section (measurement phase: "Before")
- Model analysis of a prototype "Fastener less embedded resilient tram track for squeal noise reduction including the ROLL - SLIP excitation of the wheel & rail and a time domain analysis considering constant crabbing velocity yields wheel and rail vibrations"
- Laboratory analysis & development of an adequate new "elastomer encapsulation material" with specified vertical & horizontal stiffness
- Selection of a curve location with similar geometrical characteristics with the existed curve track measured as described above i.e. Voula curved section – Glyfada Athens and precisely at Alkyonidon Avenue crossing
- construction of a specialized prefab slab including the new "elastomer encapsulation material" at the worksite prior to installation on site
- installation in situ at the selected tram line section at Voula-Athens
- ▫ campaign of squeal noise measurements & 1/3 octave band analysis at the new prefab curved track in Athens tramway network i.e. Voula (measurement phase : "After")
- evaluation of noise attenuation results towards a future development and use of such "prefab quite track" solutions at the forthcoming Piraeus extension of Athens Tram





Editorial

Community noise is one of today's most severe environmental pollutants, which makes noise induced annoyance an structural problem in our modern and complex society.

Our transportation systems constitute one of the major noise sources adversely influencing nearby residents. Only road and rail traffic noise will expose 20–30 % of European population to excessive noise levels [$L_{den} \geq 60$ dB(A)]. In terms of people affected and considering its total adverse effects, these forms in our opinion one of the more severe environmental problems of today.

Access to efficient mobility remains a basic human need and is an essential prerequisite in order to maintain high employment and economic prosperity. Therefore it is essential to find technical solutions that ensure a high degree of protection against noise especially for residents in urban areas so that a high quality of the needed mobility can be maintained.

Preserving quiet areas and achieving high levels of health and quality of life are important objectives of the European Commission. In view of that the European Commission adopted an Environmental Noise Directive in 2002 to achieve comparable data and measures for all member states in order to assess and hopefully reduce noise within cities in the EU. In support to the directive the project "Quiet City Transport" (Qcity) provides tools to be used by the local authorities for evaluating noise maps and creating noise action plans. This is done by developing and disseminating a wide range of different solutions for specific hot-spot problems.

The Qcity research project started in February 2005 with 27 partners from all over Europe. The expertise of the partners covers both road and rail related technology. Public transport organisations and local authorities are also represented. With this broad range of stakeholders, the Qcity project aims to produce the most accountable result possible.

In this brochure, the project partners would like to convey to the public some of the solutions and tools for noise reduction in urban areas as a result from the Qcity research activities.

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