

Company description

TT&E S.A. (TRAFFIC TRANSPORTATION & ENVIRONMENT CONSULTANTS S.A.) is a SME consultancy company in Greece with an outstanding reputation in noise studies specializing mainly in the fields of noise and vibration measurement technology, and assessment as well as air quality control. TT&E was established in 1998 by Prof. Konstantinos VOGIATZIS. They have been involved with various Noise and Vibration studies for Attiko Metro (lines 2 and 3), Tram of Athens, Greek Railways, Athens International Airport Aircraft noise, Attiki Odos (Athens Ring Road) as well as for the extensions of these lines. They are involved in the noise mitigation study for the Athens Tram. They have made extensive traffic noise maps of the city of Athens including very detailed local maps. They have worked out the noise mitigation measures along the new highways in and around Athens. They are working on noise mapping around airports. The Scientific Director Prof. K. Vogiatzis, is awarded with the Decibel d'Or (2003) award (Ministry of the Environment of France) and the Award of Environmental Sensitivity of Greece (Oikopolis 2008), for his excellent work in transportation environmental acoustics.

TT&E ensures "Total Design Solutions for Environmental Noise, Vibration, & Atmospheric pollution monitoring and assessment allowing the full determination of the most dominate noise, vibration and air pollution sources at specific sensitive receptor locations permitting an effective analysis and development of the appropriate cost effective mitigation strategies for environmental management and rehabilitation , for both construction and operation phases of the project, aiming at the minimization of harmful effects especially of noise & vibration exposure, in urban areas, deriving abatement solutions and achieving compliance with the constraints of legislative limits.

TT&E is a **HIGH QUALITY CONSULTANT IN ACOUSTIC & ATMOSPHERIC ENVIRONMENTAL PROTECTION** with large capabilities in *environmental acoustic* metrology with *emphasis* in noise assessment and modelling related design services, by means of three-dimensional computerized noise model (DTM) containing all relevant noise sources, as well as the sensitive receptor locations with emphasis to archaeological sites, i.e.:

- Metro, Tram, Railways, LRT network system : Environmental noise & vibration measurements & assessment
- Road Traffic (Highways, motorways, etc.), Air traffic (airports & heliports) noise & vibration measurements & assessment
- Strategic Noise Mapping, Noise Action plans & Environmental Noise monitoring programs
- Worksite & building Outdoor & indoor Noise & vibration measurements & assessment
- Noise barriers
- Atmospheric Pollution Measurements (CO, PM, NO₂,SO₂, etc..) & Environmental Monitoring Programs
- Atmospheric pollution 2D & 3D modelling and assessment

Metrology :

Special automotive stations with special weatherproof protection devices are ideal for executing at least 7days/ 24hrs environmental noise, vibration & atmospheric pollution measurements. The stations have special telescopic mast for mounting both microphone & air pollutant sensors with the necessary weatherproof and birds protection at the required height of 4m., according to the European Directive 2002/49/EC, including :

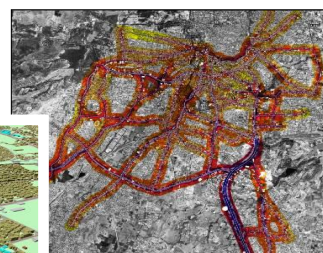
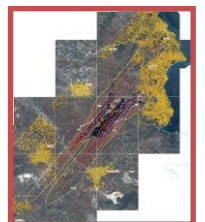
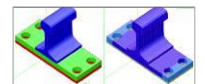
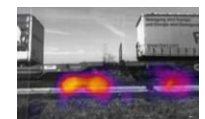


- Integral Noise Statistical real-time Analysers SOLO (01dB FR), according to 651 & 804 International Electro-Technical Commission (IEC PUBLICATIONS 651-1979 and 804-1985) and standards IEC 1260 and IEC 61672-1.
- All Weather microphones & protection of birds BAP 21 / VES21 ensuring absolute protection to the measuring equipment against climatic conditions that may affect the smooth functioning of the institutions and birds.
- WILCOXON accelerometers 731A with P31 power amplifiers & a Digital 4 channel data recorders for ground borne vibration recordings of acceleration (rms in m/sec²) & max. particle vibration velocity (ppv in m/sec).
- 4 channels, registration Noise & Vibration system in the human body MAESTRO available for making measurements both ground borne noise and vibration, equipped with tri-axial accelerometer. The 4th channel can be used either by a uni-axial accelerometer or microphone with a preamplifier.
- Software for signal analysis, time series analysis, FFT & 1/3 octave analysis
- PM₁₀ & PM_{2,5} PARTISOL, model 2000, of THERMO ELECTRON USA approved under EN12341.
- PM₁₀ & PM_{2,5} 24-hour measurement ERENDA model LVS3.1, D, approved by EN12341.
- CO & NO_x Analyzers (48C & 42C Thermo Environmental Instruments-USA).
- Analyzer T-VOC model ppbRAE (RAE Systems USA).



Selected European & Local Projects and Studies :

- **EUROPEAN PROJECT "QCITY (QUIET CITY TRANSPORT)"** integrating the technology of transportation infrastructure for effective control of road and rail noise by taking into account the reduction of noise at source at both vehicle and infrastructure level, with emphasis on road traffic and urban public transportation track (Tram Athens, Antwerp, Ghent, Brussels, etc.)
- **EUROPEAN PROJECT "CITYHUSH, ACOUSTICALLY GREEN ROAD VEHICLES AND CITY AREAS"** aiming to include the development of the concept of zones Q and embedded parks, improved models to assess noise both inside buildings and in outdoor urban spaces
- **NOISE & VIBRATION ENVIRONMENTAL STUDIES FOR ATHENS METRO & TRAM NETWORKS** with emphasis to the following
 - ✓ Extension of Athens tram & Athens Metro lines to Piraeus
 - ✓ Environmental Noise & vibration assessment & special Floating Slab track work in the extension to Athens Tram to Haidari & Anthoupoli
 - ✓ Noise & Vibration mitigation measures study for the extension of LINES 2 & 3 OF ATHENS METRO for the Athens Olympic Games
 - ✓ Special Noise & Vibration Study for airborne noise from the Metro Train Circulation in Service Depot at Stavros
 - ✓ Noise and Vibration Study in piloting installation of floating slab in SEGMENT 33 at the extension to Ag. Paraskevi including Floating Slab's conceptual studies at the extensions to Agia Paraskevi, Ilioupoli, Peristeri & Aigaleo.
- **STRATEGIC NOISE MAPPING & NOISE ACTION PLANS FOR THE ATHENS INTERNATIONAL AIRPORT & LARNACA-PAFOS INT. AIRPORTS IN CYPRUS**
- **STRATEGIC NOISE MAPPING & NOISE ACTION PLANS FOR THE ATHENS RING ROAD THE ATHENS-SALONIKA HIGH WAY, EGNATIA ODOS etc.**
- **STRATEGIC NOISE MAPPING & NOISE ACTION PLANS FOR NICOSIA, LIMASSOL, PAFOS, LARNACA URBAN AREAS IN CYPRUS, VOLOS & LARISSA IN GREECE**



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