



城市立体轨道交通的环境噪声测试与分析

朱怀亮¹,袁二娜²,李鹏¹,王梦觉¹

(1.上海大学 理学院, 上海 200444; 2.上海大学 上海市应用数学和力学研究所, 上海 200072)

Measurement and Analysis of Noise in Multi-layer Urban Rail Transit

ZHU Huai-liang¹,YUAN Er-na²,LI Peng¹,WANG Meng-jue¹

(1. College of Sciences, Shanghai University, Shanghai 200444, China; 2. Shanghai Institute of Applied Mathematics and Mechanics, Shanghai University, Shanghai 200072, China)

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摘要

以共和新路地铁-双层高架轨道交通系统为背景,研究了城市立体交通体系所引起的振动和环境噪声问题.通过对地下车站、地面周边和双层高架等不同区域的测量与频谱分析,获得1/3倍频曲线和等效声压级,分析了不同构造形式的轨道交通所诱发的辐射噪声及其分布规律,为城市立体轨道交通体系的建设、环境评价和噪声控制提供了有益的参考.

关键词: [噪声理论](#); [快速傅里叶变换](#); [数据分析](#); [环境评价](#)

Abstract:

This study takes the multi-layer mass transit of Gonghexin Road, Shanghai, as an example, which has a subway line with a double-decker elevated track. Vibration and environmental noise caused by the urban mass transit was investigated. Noise measurement was done in the subway, on the ground and on the double-decker elevated track. Based on the date and their spectral decomposition, curves of one third octave characteristics and equivalent sound pressure levels were obtained. Further analyses were carried out on the rules of normal noise for different mass transits. The results are useful for the urban development, environmental evaluation and noise control.

Keywords: [noise theory](#); [fast Fourier transform \(FFT\)](#); [data analysis](#); [environmental evaluation](#)

收稿日期: 2009-05-06;

基金资助:

上海市重点学科建设资助项目(S30106);国家大学生创新基金资助项目(CXGJ08 03);上海大学研究生创新基金资助项目

通讯作者 朱怀亮 (1956~),男,教授,博士,研究方向为结构动力学、振动与控制. E-mail:zhuhl@staff.shu.edu.cn

作者简介:朱怀亮 (1956~),男,教授,博士,研究方向为结构动力学、振动与控制. E-mail:zhuhl@staff.shu.edu.cn

引用本文:

.城市立体轨道交通的环境噪声测试与分析[J] 上海大学学报(自然科学版), 2009,V15(6): 611-614

.Measurement and Analysis of Noise in Multi-layer Urban Rail Transit[J] J.Shanghai University (Natural Science Edition), 2009,V15(6): 611-614

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