

NOISE/NEWS

Volume 22, Number 4
2014 December

INTERNATIONAL

*A quarterly news magazine
with an Internet supplement published
by I-INCE and INCE/USA*

NOISE-CON 14

Summary of last year's convention
in Ft. Lauderdale, FL

NEW NOISE-CON APP

New program helps conference
attendees

SUCCESS STORIES IN NOISE REDUCTION

Ireland-based project wins
Soundscape Award

ASME JOINS I-INCE

Set to sponsor Inter-Noise 2015

TUNE INTO ZERO's SOUND SOLUTIONS

ZERO is a world-wide leader in high-performance acoustical control for doors, windows, walls or floors. Nobody does sound control better — we use advanced technology and testing to master the challenges of creating an effective barrier and preventing gaps in that barrier for the life of the assembly. Our systems are rated for use in sound studios and recording facilities, music halls, or where ever sound solutions are needed — up to 55 STC. Let us help you close the door on noise — contact us for a copy of our 20 page Sound Control brochure, and our 92 page Product Catalog, or download from our website.

The image displays a collection of technical brochures and diagrams for ZERO Sound Solutions. Key sections include:

- PROVEN SOLUTIONS FOR SEALING THE GAPS:** Discusses the importance of sealing gaps in doors and windows for sound control.
- SOUND TRANSMISSION CLASS (STC) TABLES:** Provides data on the performance of various sound control products.
- SOUND TRAP 49 STC SEALING SYSTEM:** Details a system for sealing gaps in doors and windows.
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Editorial Staff

J. Thompson, *Managing Editor*
412.228.9127

D. Torbeck, *Editorial Assistant/Publisher*

G. Ebbitt, *Feature Editor*

B. Berry, *European Editor*

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Advertising Sales Manager

Richard J. Peppin
5012 Macon Road
Rockville, MD 20852
301.910.2813

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The Institute of Noise Control Engineering of the USA, Inc.
Business Office
100 East Washington Street
Springfield, IL 62701
USA

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ADVERTISING: For information about advertising, contact Richard J. Peppin, Advertising Sales Manager, 301.910.2813, e-mail: peppinR@asme.org.



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NOISE/NEWS

INTERNATIONAL

This PDF version of Noise/News International and its Internet supplement are published jointly by the International Institute of Noise Control Engineering (I-INCE) and the Institute of Noise Control Engineering of the USA (INCE/USA). This is the third volume that is being published in PDF format only. The PDF format means that the issues can be read by freely available software such as that published by Adobe and others. It reduces publication time, saves printing costs, and allows links to be inserted in the document for direct access to references and other material. Individuals can sign up for a free subscription to NNI by going to the web site <http://www.noisenewsinternational.net>

I-INCE

The International Institute of Noise Control Engineering (I-INCE) is a worldwide consortium of societies concerned with noise control and acoustics. I-INCE, chartered in Zürich, Switzerland, is the sponsor of the INTER-NOISE Series of International Congresses on Noise Control Engineering, and, with the Institute of Noise Control Engineering of the USA, publishes this quarterly magazine and its Internet supplement. I-INCE has an active program of technical initiatives, which are described in the Internet supplement to NNI. I-INCE currently has 46 Member Societies in 39 countries.

INCE/USA

The Institute of Noise Control Engineering of the USA (INCE/USA) is a non-profit professional organization incorporated in Washington, D.C., USA. The primary purpose of the Institute is to promote engineering solutions to environmental noise problems. INCE/USA publishes the technical journal, *Noise Control Engineering Journal*, and, with I-INCE publishes this quarterly magazine and its Internet supplement. INCE/USA sponsors the NOISE-CON series of national conferences on noise control engineering and the INTER-NOISE Congress when it is held in North America. INCE/USA Members are professionals in the field of noise control engineering, and many offer consulting services in noise control. Any persons interested in noise control may become an Associate of INCE/USA and receive both this magazine and *Noise Control Engineering Journal*.

NNI and its Internet Supplement

www.noisenewsinternational.net

The primary change in this PDF-only volume of *NNI* is the ability to have “hot links” to references, articles, abstracts, advertisers, and other sources of additional information. In some cases, the full URL will be given in the text. In other cases, a light blue highlight of the text will indicate the presence of a link. At the end of each feature or department, a light blue [back to toc](#) will take the reader back to the table of contents of the issue.

- The Internet supplement contains additional information that will be of interest to readers of *NNI*. This includes:
- The current issue of *NNI* available for free download
- *NNI* archives in PDF format beginning in 1993
- A searchable PDF of annual index pages
- A PDF of the current *NNI* conference calendar and a link to conference calendars for worldwide meetings
- Links to I-INCE technical activities and I-INCE Technical Reports

Forty Years Are Not Enough!

Big birthdays and anniversaries set in place thoughtful breaks, breaks between looking back to intentions and achievements as well as looking forward to new tasks and challenges. Have all efforts been successful? Is the mission still valid? Can we do better? Can we be satisfied—proud, even—of our past and confident, self-assured about our future? Are our goals still relevant? What is our vision today? Anniversaries invite critical reviews and provoke thorough repositioning, and so does the fortieth anniversary of I-INCE, the International Institute of Noise Control Engineering!

Founded in October 1974, I-INCE extended the scope of INCE/USA's previous national initiative to an international platform of competent member societies and associations from more than 40 countries today and thus set the framework for the most successful series of Inter-Noise conferences. These initiatives followed the spirit of their time in that acoustics had become a proven engineering discipline and noise control had gained acceptance as a social duty.

This gave the background for a historic initiative aiming to establish and strengthen the discipline and the profession of noise control engineering and to implement and maintain a continuous platform for scientific exchange of views, experiences, and ideas. The first was done in 1972 by founding INCE/USA, the Institute of Noise Control Engineering of the United States. The second was done by starting the Inter-Noise conference series, which in turn required an international body, I-INCE, running and further developing it.

This was exactly 40 years ago—4 decades in which about 50 member societies and 20 sustaining/institutional members together with hundreds of volunteering experts and thousands of individual

members and professional delegates continuously contributed to meet expectations and to extend the scope of the Institute. I would like to express my deepest gratitude for the many successful efforts made by many to bring I-INCE and Inter-Noise to where it is today.

We definitely needed many efforts and many actors to launch such a successful and sustainable institution, but I would also like to mention that all this never would have happened without the vision and the vigor of four people: Bill Lang and George Maling being the real driving forces of the whole initiative, Leo Beranek being a most influential founding sponsor, and Fritz Ingerslev being the nucleus of its internationalization.

However, any anniversary pride must be seen in a larger perspective, and that is the perspective of a continuous matter—the matter of successfully controlling the noise and improving the sound quality around us in a long term. This is a task as important and as relevant today as it was in the early days of our institute. Yes, we have been successful, but we are far from finished. Forty years are not enough!

We have to keep working, and we will go on to meet and exchange our ideas and experiences. Looking back should not tempt us to be self-satisfied; rather, it must urge us to keep improving the acoustic quality of our environment, of our world.

In this sense—expressing satisfaction and pleasure for the achievements of the past as well as expressing and encouraging demanding expectations and commitments for the future—I speak on behalf of the whole noise control engineering community when congratulating and wishing a happy birthday to I-INCE! 🎉

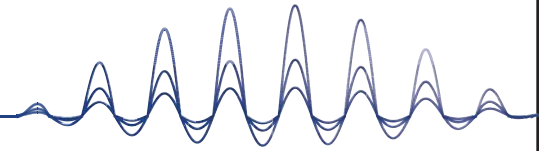


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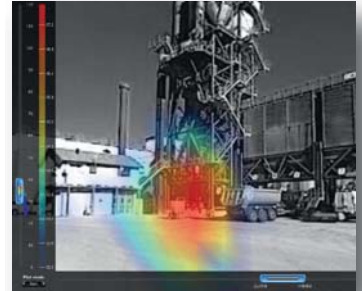
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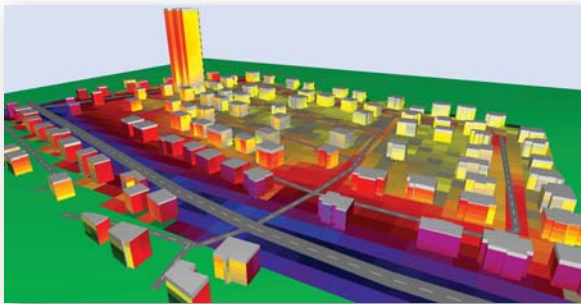


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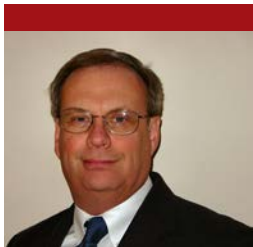
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Vehicle Noise: An Outstanding Success Story for Noise Control Engineering



Jim Thompson,
Ph D, PE, INCE Bd.
Cert.

*nnieditor@
noisenewsinternational.net*

I imagine that a number of people seeing the topic of this piece are asking, "What success story?" They are aware of traffic noise issues in many parts of the world and may be wondering how I can say this. It is quite simple: the success story is on the inside of the vehicle.

Consider how quiet vehicle interiors have become—the progress that has been made is remarkable. Here is a good test: find someone with a car from the early 1990s and take it for a drive. At low speeds, you will hear every change in road surface, and when you depress the throttle at the right engine speed, you will hear engine noise booming in the interior. At highway speeds there will be high levels of background noise from the road surface and aerodynamic sources. Now sit in a modern, reasonably priced car from nearly any major manufacturer and you will find huge reductions in noise. If you next move to one of the premium manufacturers, you may find the noise levels to be uncomfortably low. In fact, some journalists have objected to the steep reduction in interior noise levels, feeling that the lack of noise isolates them from sensing how the vehicle is operating or what is going on outside of the vehicle. Some manufacturers now add artificial or enhanced sounds to the vehicle interior to improve the perception of the power of the engine or simply for the driver to feel in touch with how the vehicle is operating.

Another measure of the success in vehicle interior noise is the link between vehicle quality and noise. From everyday conversations to automotive magazines, one finds the amount of noise in a vehicle being equated with quality. In a recent magazine

article, a writer was testing an Asian-made car that claimed it was just as good as a luxury, German-made car. He noted that it was not quite up to par with the German brand, and one of the key things he cited was that there was still too much road and wind noise in the vehicle.

Vehicle interior noise has overcome the concern of sound *levels*. It is now totally focused on sound *quality*. The interior noise should interfere minimally with conversation or listening to music and should not contain sounds that might be disturbing. With the introduction of electric and hybrid vehicles, the sound quality problem has taken on even greater importance. Sounds that once may not have even been noticed in an internal combustion powertrain car are now major issues. The classic case for me is the person who took a car into the dealer, complaining that the fan would not turn off despite manually turning it off through the automatic climate control. After much discussion, the technician found the problem to be the cooling fan on the navigation/entertainment system in the interior of the dash. The interior background noise level in the hybrid was so low that the noise from this internal fan became noticeable and annoying.

Clearly it is a major accomplishment to be focused on managing the nature of sounds and not the magnitude. However, this does not mean the automotive noise control engineers can simply relax. The changes in powertrain types and configurations, new lightweight materials, and other issues mean a continuing process of issues and the need for refinement. 📄

Member Society Profile

INCE/Europe is a not-for-profit organization incorporated in England and a Member Society of the International Institute of Noise Control Engineering (I-INCE). The purpose of the organization is to assist individuals and groups working on the effects and control of noise and vibration.

INCE/Europe was formed in 1999 following discussions with Board Members of I-INCE having the primary goal of aiding the exchange of information about all aspects of the discipline with



a dual emphasis on engineering and Europe. An important secondary aim is the promotion of specialist meetings on topics not readily covered in large international congresses.

INCE/Europe maintains various pages on the Internet, which may be found by going

to www.inceurope.org. News items on this site are accessible to all visitors, and it is intended that these will cover such aspects as events, standards, and advances in technology, instrumentation, and software.

The address for correspondence is
Riverside House
4 Oakland Vale
New Brighton, Merseyside CH45 1LQ, UK
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NOISE-CON 2014

Noise-Con 2014, the 2014 National Conference and Exposition on Noise Control Engineering, was held September 8–10, 2014, at the Westin Fort Lauderdale Beach Resort in Florida, USA. One hundred seventy eight technical presentations were given at the conference, and 152 papers along with other information about the conference were distributed to the 325 attendees on thumbdrives. Steve Marshall served as general chair, Gordon Ebbitt and Steve Sorenson served as technical program co-chairs, and Richard J. Peppin served as the exposition manager. Courtney Burroughs and George Maling served as the proceedings editors.

Written papers were submitted in nine INCE/USA technical areas:

- General (5 papers)
- Emissions: Noise Sources (75)
- Physical Phenomena (16)
- Noise Control Elements (33)
- Vibration And Shock: Generation, Transmission, Isolation And Reduction (23)
- Immission: Physical Aspects Of Environmental Noise (52)
- Immission: Effects Of Noise (20)
- Analysis (62)
- Requirements (13)

In addition to these technical areas, papers dealt heavily with a few select areas: aircrafts (9 papers), highway vehicles (11), manning (7), mufflers and muffler performance (13), and building and architectural acoustics (30).

In addition to the presentation of the technical papers at the conference, there were two special sessions held that provided meaningful information to those who attended:

- “In Honor of George C. Maling, Jr.,” organized by William Lang and Eric Wood
- “Public Outreach Workshop on Community Noise,” hosted by Larry Finegold and David Sykes

There were also three short courses offered to those who attended the conference:

- “Practical Aspects of Acoustical Enclosure Design,” taught by Daniel J. Kato
- “Practical Aspects of Muffler Design and Optimization,” taught by Andrew Seybert and David Herrin
- “INCE Fundamentals Exam Preparation and Optional Exam,” taught by James D. Barnes and Mark Storm

One technical tour was offered to those who attended the conference:

- Broward Center for the Performing Arts Tour

The opening events for the conference were held on Monday, September 8. At this early morning session, Steve Marshall welcomed everyone to NOISE-CON 2014 and recognized the organizational team that put together the conference (see Figure 1). Gordon Ebbitt, INCE-USA president, thanked Steve and the team and provided an overview of INCE-USA and encouraged members to participate in the Institute and contribute to the noise control engineering profession (see Figure 2). The opening plenary presentation was provided by Mark Schaffer, PE, INCE board-certified from Schaffer Acoustics Inc. (see Figure 3). This presentation, “Noise Control & HVAC Systems,” provided an excellent overview of some of the new technology being applied in the HVAC industry to reduce noise while improving energy efficiency.



Figure 1. Steve Marshall opening NOISE-CON 2014



Figure 2. Gordon Ebbitt, INCE-USA President, welcoming conference participants



Figure 3. Mark Schaffer giving opening plenary presentation

A new feature for this conference was the use of an app to provide real-time information on the conference and available to all the attendees. A short summary of this app and its evaluation is provided in a separate article.

The special session recognizing George C. Maling, Jr. was an outstanding event. Organized by Bill Lang and Eric Wood, this was an outstanding review of George’s career and his many contributions to INCE

and the noise control community. George's early work in helping to found INCE-USA and his work in developing new techniques in the field were discussed by several presenters. The room was filled to capacity, and the recollections were both poignant and comedic at times. One of the highlights was the brief talk by George's son Jeff, who described what it was like growing up under George's mentorship. Jeff provided unique insights into George and his family. In addition, Jeff provided some comical recollections about some experiments and their consequence in the household (see Figure 4). All who attended this session gained a great appreciation for George's contributions and the tremendous debt he is owed by the noise control community.



Figure 4. Jeff Maling discussing George's science experiments

The student luncheon was held at noon on Monday, September 8 (see Figure 5). This session was sponsored by the National Council of Acoustical Consultants (NCAC). There was an excellent turnout for this event with many useful discussions of careers in noise control engineering with representatives from industry, universities, and government.



Figure 5. Student luncheon

The exposition opening reception was held Monday evening. With 55 exhibitors, there was much for the attendees to see in touring the exhibit space. The large number of exhibitors resulted in the accommodation of booths in the exhibit hall in the walkway outside the room. This proved to be an excellent arrangement with a good traffic in both areas, and there was no congestion impeding people's ability to visit the displays.

On Tuesday morning, September 9, the sessions began with a few announcements by Gordon Ebbitt and Steve Sorenson (see Figure 6). This was followed by the discussion of the new movie, *In Pursuit of Silence*, by Mandy Kachur (see Figure 7). Mandy showed a brief trailer for the movie. Next, David Lubman of DL Acoustics provided an excellent presentation on archaeoacoustics and Soundscape (see Figure 8). His talk was quite interesting, with examples of artificially created sounds from ancient cultures to mimic birds. He included examples from around the world, demonstrating the skill and expertise related to sound in ancient cultures.



Figure 6. Steve Sorenson, co-chair technical program for updating program information



Figure 7. Mandy Kachur introducing the trailer for the film *In Pursuit of Science*



Figure 8. David Lubman delivering the Tuesday morning plenary

Following this plenary, there was an interesting session—Classic Papers in Noise Control Engineering Presentation Competition—which has become a regular feature in the last three conferences. In this session, students select a classic paper in acoustics and prepare a presentation describing the paper and its impact. In

honor of the upcoming 100th birthday of Leo Beranek, all of the papers in this session were written by Dr. Beranek. A team of three attended the session and evaluated the student presentations. This session was well attended, and all agreed that the students did an excellent job analyzing the papers and making effective presentations.

Also, the Public Outreach Workshop on Community Noise began. This workshop focused on the marine environment and the protection of marine species. This workshop attracted a large number of attendees from the public at large, scientists working in the area, and school groups who came on a field trip to learn about the acoustic issues related to the marine environment.

At noon the Women in Noise Control Engineering lunch was sponsored by Kinetic Noise Control. This event was hosted by Erin Dugan and Patricia Davies. It was well attended with good discussions among those participating. This meeting provided a forum for women in the field to share their experiences with each other and talk about ways to increase the number of women participating in noise control engineering.

On Wednesday morning, September 10, Paul Donovan provided an excellent overview of INTER-NOISE 2015 and welcomed all to attend (see Figure 9). The plenary presentation was by Mardi Hastings of Georgia Institute of Technology (see Figure 10). Her presentation, "Prediction and Mitigation of Acoustic Impacts in the Marine Environment," was outstanding and provided a lot of information for those not familiar with this topic. Dr. Hastings provided an excellent overview of the characteristics of different species relevant to hearing and damage from noise exposure.



Figure 9. Paul Donovan describing INTER-NOISE 2015



Figure 10. Mardi Hastings delivering the Wednesday morning plenary

This presentation was followed by the INCE-USA award ceremony. At the INCE/USA award ceremony, several student awards were given out. These included three travel awards, two presentation awards, and recognition of the 2014 Beranek Medalists. All funding for these awards was provided by the INCE Foundation, some of it from directed donations.

Travel Awards

INCE/USA, with INCE Foundation support, was able to make 18 travel awards to students to support them in presentation

of their work at Noise-Con 2014. The Michiko So Finegold Award is intended to support graduate students and young professionals presenting work in the areas of noise effects research, noise policy, and noise control engineering. It is made possible by a donation from the Michiko So Finegold Memorial Trust facilitated by INCE member Larry Finegold. Larry provided a moving introduction to this award and its importance to him (see Figure 11).

Michiko So Finegold Award winners for 2014, \$850 per award:

Rui Cao	Purdue University
Raef Cherif	Université de Sherbrooke
Seungkyu Lee	Purdue University
Guohua Sun	University of Cincinnati
Yawen Wang	University of Cincinnati
Junyi Yang	University of Cincinnati



Figure 11. Larry Finegold introducing the Michiko So Finegold Award

The Hallberg Foundation Award is intended to support undergraduate and graduate students in their travel to present their work in noise control engineering. It is made possible by a donation from the Elizabeth L. and Russell F. Hallberg Foundation, facilitated by INCE member Doug Winker.

Hallberg Foundation Award winners for 2014, \$500 per award:

Cameron Fackler	Rensselaer Polytechnic University
Tao Feng	University of Cincinnati
Philip Feurtado	The Pennsylvania State University
Sean Kilgallin	Georgia Institute of Technology
Hoang Le	Tennessee Technological University
Yangfan Liu	Purdue University
Olivier Robin	Université de Sherbrooke
Peng Wang	University of Kentucky
Daniel Woods	Purdue University
Liuxian Zhao	University of Notre Dame

The E-A-R Thermal Acoustic Systems award is intended to support students presenting their work in the areas of passive noise control technology and is supported by a donation from E-A-R Thermal Acoustic Systems, Aearo Technologies LLC, a 3M company.

E-A-R Thermal Acoustic Systems Award winners for 2014, \$500 per award:

Nicholas Kim	Purdue University
Wanlu Li	University of Kentucky

Leo Beranek Student Medal for Excellence in the Noise Control Studies—2014 Medalists and two 2013 Medalists who received awards in early 2014:

2014

Brigham Young University:	Jazmin Myres and Daniel R. Marquez
Penn State University:	Matthew Todd Neal and Micah R. Shepherd
Rensselaer Polytechnic Institute:	Cameron Jeff Fackler
Ohio State University:	John A. Scheick and Michael D. Krak

University of Hartford: Adam Lawrence Paul and David A. Arena

University of Nebraska – Lincoln: Joonhee Lee

University of Cincinnati: Alexandra Maddox and Guohua Sun

Georgia Institute of Technology: Michael Ippolito and Ashwin Thomas

Purdue University: Yutong Xue and Bao N. Tong

2013

Brigham Young University: Zachary R. Jensen and Alan T. Wall


STUDENT PAPER COMPETITION AND PRESENTATION AWARDS

NOISE-CON 2014 saw the 26th INCE/USA Student Paper Competition, which started in 1989. The INCE Foundation provides funding for as many as five awards. Each award is \$1000, with an additional \$500 awarded if the paper is eventually published in the Noise Control Engineering Journal. Judging is based on independent reviews of the paper itself plus the oral presentation at the conference. This year, 5 awards were made. These papers were presented throughout the conference as part of the regular technical sessions. A newer tradition is the Classic Papers in Noise Control Engineering presentation award. Students are invited to choose from a list of classic papers in noise control engineering and present these with an analysis of the original work and its influence on subsequent research in the field, and if applicable, a summary of their own work in that particular area. This competition started at Inter-Noise 2012 and is a dedicated session. This year, in recognition of the Leo Beranek centenary, all the papers were Beranek publications ranging from 1939 through 2006. Funding this year for the \$1000 award was provided by the INCE Foundation through a donation from E-A-R Thermal Acoustic Systems.

Student Paper Competition winners:

- Yangfan Liu, Purdue University, “High Frequency Sound Field Simulation by the Method of Local Basis Representation”
- Philip Feurtado, The Pennsylvania State University, “A Design Parameter for Acoustic Black Holes”
- Olivier Robin, Université de Sherbrooke, “Measuring Sound Absorption Coefficient under a Synthesized Diffuse Acoustic Field”
- Bao Tong, Purdue University, “Atmospheric Effects on Noise Propagation from an en-route Aircraft”
- Peng Wang, University of Kentucky, “Impedance-to-Scattering Matrix Method for Silencer Analysis”

The Classic Papers in Noise Control Engineering competition winner was Daniel Woods of Purdue University. His paper was titled “Overview of Dr. L. L. Beranek’s 2006 Paper on Analysis of Sabine and Eyring Equations and Their Application to Concert Hall Audience and Chair Absorption.”

An important event held on Wednesday right after the opening session was the Young Professionals and Student Workshop. This was a two-hour block of time containing a meet-and-greet with INCE/USA directors and officers who were able to attend and a solicitation for INCE technical activities committee participation (Ran Cabell), a solicitation for ASTM participation (Wil Byrick), a presentation on how to present a conference paper (Stuart Bolton), a presentation on how to publish in NCEJ (Courtney Burroughs), and open discussion on general topics of interest, such as salary expectations, how to convince your boss that presenting at a conference is a good idea, and job interviewing techniques, among other topics. 

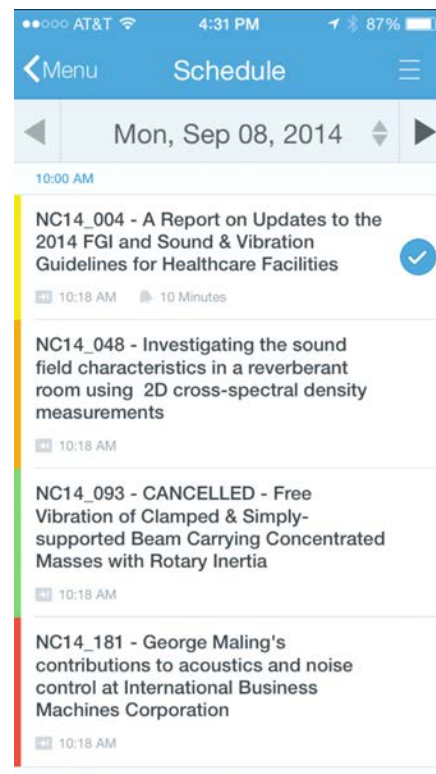
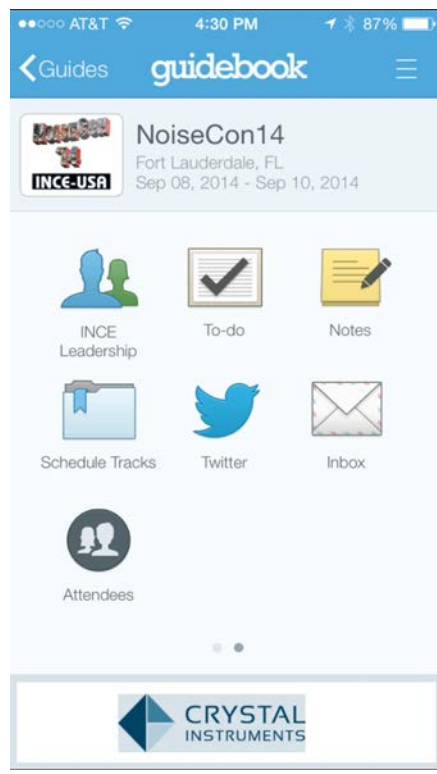
New for Noise-Con 2014: A Guidebook App for All Attendees

Noise-Con 2014 introduced INCE conference attendees to a new form of the conference program. The event became the first INCE conference to offer attendees the option of utilizing their cell phones, tablets, and computers to access a digital version of the conference program with real-time updates. The digital interface allowed users to view the most up-to-date schedule; create their own personal schedule; see a list of the presenters, organizers, and exhibitors; and take notes and arrange to-do lists, all on their mobile devices. The feedback and results were outstanding, and a digital app will be part of conference plans in the future.

The digital interface was produced by utilizing an app called Guidebook. Guidebook is an event app that allows users to create their own digital guidebook for their events that runs through the Guidebook app. The Guidebook software allows the creator to enter the extensive information about the conference (presentation schedule, abstracts, presenters, exhibitors, organizers, etc.) as individual data sets. The information can then be linked to allow the different information to be related to each other, such that the presentation and abstract could be linked to the presenters and their affiliation.

The locations of the presentations could also be mapped on a plan for the event to show users where the event is occurring. Exhibitor listings included logos, company descriptions, and booth locations to allow the attendees easy access for finding the exhibits.

Beyond just entering the conference data and information, the app allowed for updates and corrections as the conference was occurring. The updates were broadcast to the users either as they were using the app or the next time they logged in. Another very useful feature was the ability to search the conference guidebook



to be able to find events, presenters, organizers, or other information that the users sought. These two features were what substantially differentiated the app from the traditional hardcopy versions.

The Noise-Con 2014 app was first available for download on Sunday, September 7. To initially spread the word, fliers were posted around the registration area that afternoon. By the time the app was officially announced to the conference on Monday morning, 82 guidebooks had been downloaded. By the end of the conference, 160 copies of the Noise-Con 2014 guidebook had been downloaded by attendees (74 to iOS



devices, 59 to Android devices, and 27 to other platforms).

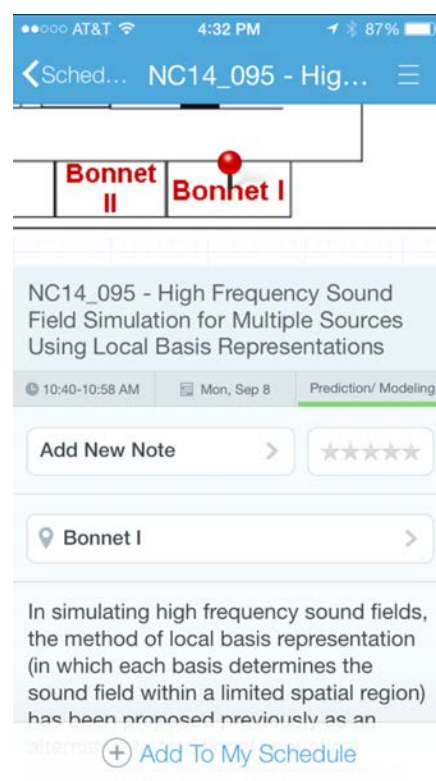
Overall, the feedback about the app was very positive. Many attendees found the personal scheduling feature very useful, while others found the notes and advanced social features, such as viewing up-to-date lists and other attendees at each presentation, fun. There were some unique complications with the Guidebook app for some users, though it was not clear if any of these issues prevented the basic functionality from allowing them to use the app for the primary scheduling purpose.

The app should still be available through Guidebook. To view it, visit the app store



for your mobile device to download the Guidebook App. After that app is on your device, open the app and search for the NoiseCon 14 guidebook if you are interested in trying it out.

In the end, the app allowed INCE/USA to provide the conference attendees the most modern way to access and interact with the conference information. Given the extremely positive feedback, the INTER-NOISE 2015 conference organizers are looking forward to providing the guidebook for their upcoming event next August in San Francisco. Look for updates about the Guidebook as the conference approaches. 📱





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THE NOISE-CON 2014 proceedings and additional proceedings

NOISE-CON 14 was the twenty-ninth in a series of National Conferences on Noise Control Engineering organized by the Institute of Noise Control Engineering of the USA, Inc. (INCE/USA). The conference was held September 8–10 at the Westin Beach Resort and Spa in Fort Lauderdale, Florida, USA.

A USB Flash Drive containing the NOISE-CON 14 Proceedings and 16 additional proceedings is now available online from the INCE/USA page at Bookmaster's Atlas Bookstore.

This USB Flash Drive contains the conference proceedings with 154 papers and was prepared by Courtney Burroughs and George Maling. Steve Marshall served as conference chair with Gordon Ebbitt and Steve Sorenson as technical co-chairs. The subject index for the NOISE-CON 2014 Proceedings is available on the Internet.

The URL is <http://www.noisenewsinternational.net/nc14/SubjectIndex.pdf>

This USB Flash Drive also contains the proceedings of ALL NOISE-CON conferences held since 1996. This includes the years 1996, 1997, 1998, 2000, 2001, 2003, 2004, 2005, 2007, 2008,

2010, 2011, 2013, and 2014. Also included are the proceedings of three sound quality symposia, 1998, 2002, and 2008.

Including the NOISE-CON 2014 papers, a total of 1927 technical papers are included on this drive. All papers are in PDF format, and the drive is searchable by any string of text.

These papers are a valuable source of information on noise control that will be of value to engineers in industry, acoustical consultants, researchers, government workers, and the academic community.

The Flash Drive may be ordered from the INCE/USA page at the Atlas Bookstore—<http://www.bookmasters.com/marktplc/00726.htm>—or from Bookmasters, Inc. at 30 Amberwood Parkway, Ashland, OH 44805, USA. Toll free: 1 800 247 6553; International: +1 419 281 5100; FAX: +1 419 281 6883; e-mail: info@atlasbooks.com.

The stock number is NC14, and the price is 70 U.S. dollars plus shipping and handling: domestic \$2.00; foreign \$5.00. The drive is shipped by first class mail in the United States and by air mail to other countries.

Reducing Noise Pollution – Success Stories

Topics: [Noise](#); [Transport](#)

A project in Ireland has won the European Soundscape Award 2014 for its work on acoustic planning and urban sound design. The prize, presented by the European Environment Agency (EEA) on Thursday evening in Bern, recognises initiatives that can help reduce noise and create healthy soundscapes.

Noise pollution can increase stress levels or disturb sleep, affecting human health. Prolonged exposure can trigger serious illnesses such as hypertension and heart disease. At the Bern meeting attended by noise experts from 39 countries, the EEA launched the 2014 update of its [Noise Observation and Information Service for Europe](#) (NOISE).

NOISE is an interactive database illustrating exposure to harmful levels of noise across Europe's major transport networks and in more than 400 cities. It shows that road traffic is the dominant source of unhealthy exposure, with at least 61 million Europeans affected. Data from 69 airports reveal that almost 3 million citizens are adversely affected by aircraft noise near airports. Railway noise impacts almost 8 million people, while noise from Europe's largest industrial sites affects almost half a million people.

The EEA aims to disseminate stories of successful action in reducing noise pollution through the European Soundscape Award.

European Soundscape Award 2014 The Winner

The project [Manual for Acoustic Planning and Urban Sound Design \(MAP\)](#) won

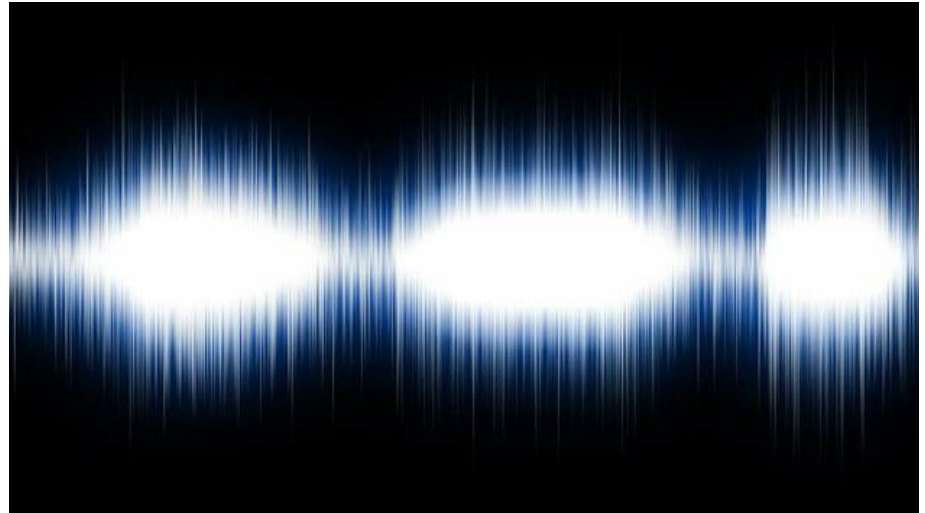


Image © IDrownFish

the European Soundscape Award 2014. Led by Sven Anderson, an urban acoustic planner at Dublin City Council, the project sought to encourage a deeper level of interest in the urban sound environment both within the city council and among the wider public.

The project included two large public sound installations which are currently being set up at prominent urban locations in Dublin. [Continuous Drift](#) is an installation based around four retractable umbrellas that cover Meeting House Square, in Dublin's most popular tourist destination and cultural quarter. The umbrellas act as the backdrop for different sonic atmospheres which can be activated using mobile phones. The second installation, [Glass House](#), listens to films being screened in an adjacent cinema, using their melodies to create a subtle sonic trace that hovers in the public space outside. In addition to the installations, the project included the three-day symposium [Beyond Noise and Silence: Listening for the City](#) and presentations at several international conferences.

Runner-up

The Department of Ecology at Aristotle University of Thessaloniki won the runner-up prize with the proposal for a practical [methodology to identify Quiet Areas \(QAs\)](#). Quiet areas are defined as sites undisturbed by noise from traffic, industry or recreational activities under the [Environmental Noise Directive](#). Identifying QAs using traditional measurement and modelling techniques can be costly and resource intensive, so the university developed a method involving mapping and land use data as a more efficient way to identify priority areas to protect from noise pollution.

Additional information

More information on each project is available in this [map](#).

Noise App

The EEA has developed [NoiseWatch](#), an app which measures and maps noise levels. Over the last two years, NoiseWatch has received more than 155 000 citizens' noise ratings from around the world. On May 8, the EEA

received a [World Excellence Award](#) for the app at the Geospatial World Forum.

Coming Up

Later in 2014, the European Environment Agency will publish its first Europe-wide noise assessment report. It will draw on data from Member States, highlighting the main sources of noise in Europe as well as its impacts on health and the environment.

Euronoise 2015:

May 31–June 3

Euronoise 2015, the 10th European Congress and Exposition on Noise Control Engineering, will be held at the heart of Europe where the first treaties leading to the creation of the European Union were signed. Acousticians and noise experts from all over Europe will gather for the event on noise control and soundscape in Europe, organized by the European Acoustics Association.

The Belgian and Dutch acoustical societies, ABAV and NAG, warmly welcome you to Maastricht for Euronoise 2015. (<http://www.euronoise2015.eu/>)


Policy Context

Since 2002, an overarching Environmental Noise Directive provides a common basis for tackling noise across the European Union. Its main aim is to avoid, prevent or reduce the harmful effects of noise exposure.

Noise emissions from vehicles and machinery have been regulated in EU for decades. It was in the 1990s however, when regulation of human exposure to noise first started to develop. The 6th environment action programme of the European Community 2002–2012 aims at “... substantially reducing the number of people regularly affected by long-term average levels of noise, in particular from traffic, which, according to scientific studies, cause detrimental effects on human health...”.

In the same year, the [Environmental Noise Directive](#) was adopted. It provided a common basis for tackling noise across the EU. The Member States should identify hotspots where noise will be mapped and for which action plans should be made. Countries should also inform the public and the Commission about these activities. The hotspots where noise-mapping and action-planning are to be carried out are around major agglomerations and alongside major roads, railways and airports.

Noise exposure is also integrated into other EU policies such as in the [thematic strategy on urban environment](#), the [Common Transport Policy](#) and the [Sustainable Development Strategy](#).

In 2004, the Commission published an overview of all relevant [European legislation and standards](#) on noise emissions. 



The advertisement features the Odeon logo on the left, which consists of a stylized 'O' made of concentric arcs and the text 'Odeon Room Acoustics Software'. To the right of the logo are several 3D-rendered acoustic diffusers. The background is a dark, abstract image with a grid pattern. On the right side, there is a photograph of a modern interior space with large windows and a wooden bench. A red banner at the top right of the image contains the website address www.odeon.dk. The main text of the advertisement reads: "... brings measurements and simulations together".

New Member Society

The Noise Control and Acoustics Division (NCAD) of the American Society of Mechanical Engineers (ASME) has joined I-INCE as a member society. About 1,000 ASME members identify NCAD as their primary or secondary interest area. The division is split into three technical groups: structural acoustics, flow acoustics, and noise control. ASME NCAD joined INCE-USA in sponsoring Inter-Noise 2012 and will do so again for Inter-Noise 2015.

Acoustical Society of America

James F. Lynch has been selected as the next ASA editor-in-chief and took office on November 1, 2014. Jim is a senior scientist at the Woods Hole Oceanographic Institution.

Charles C. Church has been appointed to replace James Lynch as editor of JASA Express Letters. He took office on September 1, 2014. Charlie is a senior research scientist at the National Center for Physical Acoustics and a research professor at the University of Mississippi.

ASA's meeting plans for 2015 and 2016 include the following:

- May 18–22, 2015, Pittsburgh, PA;
- November 2–6, 2015, Jacksonville, FL;
- May 23–27, 2016, Salt Lake City, UT
- November 28– December 2, 2016, Honolulu, HI (5th joint meeting of the ASA with the Acoustical Society of Japan)

Brazil

2014 Meetings included:

- SAE Brasil, NVH 2014, November 4–5, 2014, Florianopolis, SC, Brazil
- ANEW 2014, Oct 16–17, 2014, Brasilia, Brazil

Canadian Acoustical Association

2014 Meeting:

- Acoustics week in Canada, October 8–10, 2014, Winnipeg, Canada

Chile

2014 Meeting:

- 9th Ibero-American Congress on Acoustics, December 1–3, 2014, Valdivia, Chile

INCE-USA

The Board of Directors of INCE/USA has selected Drohan Management Group (DMG) as the Institute's new business office. DMG is located near Washington, D.C. and they have expertise in many areas including conference organization, marketing, database management, web design, and many others. Cathy Vail is our main contact at DMG. If you need to communicate with the business office, please feel free to contact them at ibo@inceusa.org or (703) 234-4073. The new address is INCE/USA, 12100 Sunset Hills Rd., Suite 130, Reston, VA 20190 USA.

Noise-Con 2014 was held in Fort Lauderdale, Florida from 8–10 September. More than 300 registered, over 160 presentations were made, and 55 exhibitors participated. There were



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<http://www.CampanellaAcoustics.com>

two special sessions: a celebrative session was held to recognize George Maling's contributions to the Institute and to field of noise and vibration engineering and a special student paper session was held to commemorate Leo Beranek's 100th birthday with students presenting classic Beranek papers and discussing their continuing relevance.

Plans are well underway for INTER-NOISE 2015 which will be held at the Marriott Marquis in San Francisco, California, from August 9–12. For more information, please visit the website at <http://internoise2015.com>. The theme of the conference is "Implementing Noise Technology."

INCE/USA has provided some financial support to a company that is producing a film titled "In Pursuit of Silence." The aim of the film is to raise public awareness of noise and its effect on people. The film is intended for a wide, nontechnical audience, though a portion of the film will focus on engineering approaches to quieting noise. In fact, some of the filming was done at NOISE-CON 2013. The producers expect to complete the film before the end of 2015. 

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INTER-NOISE 2012 Proceedings

DVD

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S/H: \$2 (US) \$5 (Foreign)

STOCK NUMBER: IN12

INTER-NOISE 2012, the 41st International Congress and Exposition on Noise Control Engineering, was held in New York City, USA, from 19-22 August 2012 at the Marriot Marquis in Times Square. The congress theme was Quieting the World's Cities.

The congress was held in conjunction with the American Society of Mechanical Engineers Noise Control and Acoustics Division (ASME NCAD) annual meeting, was sponsored by the International Institute of Noise Control Engineering (I-INCE), and was organized by the United States Institute of Noise Control Engineering (INCE-USA). The Acoustical Society of America (ASA) and SAE International also co-sponsored the event. One thousand and thirteen (1,013) technical presentations and sixty (60) poster presentations were given, along with three plenary presentations. One thousand sixty three (1,063) of the presentations were submitted as written papers that are included on this DVD.

This DVD also contains the proceedings of five additional INTER-NOISE Congresses. These are:



INTER-NOISE 1995, Newport Beach, California, USA

INTER-NOISE 1999, Fort Lauderdale, Florida, USA

INTER-NOISE 2002, Dearborn, Michigan, USA


INTER-NOISE 2006, Honolulu, Hawaii, USA

INTER-NOISE 2009, Ottawa, Canada

Written papers for INTER-NOISE 2012 were submitted in twenty four technical theme areas with a total of one hundred and twelve individual technical sessions. Twenty one parallel sessions were run over the three day conference. The largest technical themes (several individual sessions had more than 20 papers each) were the Architectural Noise / Building Acoustics (142 papers), Community / Environmental Noise (117 papers), Motor Vehicle Noise, Interior and

Exterior (113 papers). However, there was also a strong turn-out in other technical areas such as:

- Active and Passive Noise & Vibration Control (44 papers)
- Aircraft and Space System Noise & Vibration (35 papers)
- City Noise (47 papers)
- Industrial Noise (33 papers)
- Measurement and Signal Processing Techniques (48 papers)
- Inverse Approaches in Vibro-Acoustics (44 papers)
- Noise Control Products (50 papers)
- Noise and Health (65 papers)
- Noise Policy Development, Education, Economics and Implementation (47 papers)
- Numerical and Analytical Techniques (38 papers)
- Soundscape (39 papers)

The remaining ten technical themes covered both traditional and non-traditional INTER-NOISE topics, including, Consumer Product Noise, Information Technology Equipment Noise, Low Frequency Noise / Vibration and Shock, Marine Vehicles / Structures and Underwater Noise, Railway Noise and Vibration, Renewable Energy System Noise, Psychoacoustic Aspects in Noise Evaluation, Structural Acoustics, and Flow Induced Noise and Vibration. 

Asia-Pacific News

AIRAH's Acoustics Workshop 2014 Was Held in Sydney on Thursday, September 18, 2014.

Boasting a theme of “Acoustics and sustainability: Conflict or harmony?” the one-day Acoustics Workshop 2014 was the inaugural event of its type for the Australian Institute of Refrigeration, Air Conditioning, and Heating (AIRAH).

AIRAH COO Neil Cox said that hosting the Acoustics Workshop 2014 aligns with AIRAH's remit to advance the HVAC industry from a technical perspective.

“Acoustics can present real technical challenges for HVAC system designers,” Cox said. “Given the recent trend of lower-noise buildings—and many other issues around acoustics that designers are dealing with—we felt the time was right to host AIRAH's inaugural Acoustics Workshop.”

Conference committee chair Matthew Stead, M.AIRAH, said acoustics and sustainability are closely linked, and this connection would be teased out during the conference.

“Sustainable buildings—with chilled beams—are often quiet, and this can result in building acoustic problems such as reduced privacy,” Stead said. “Some other connections are that increased thermal insulation requirements are complementary to acoustic requirements. And then there is the fact that improved equipment energy efficiency often results in lower plant noise levels.”

Stead said there are some challenging issues the HVAC industry is confronting in relation to acoustics, which the Acoustics Workshop 2014 aimed to address.

Korea Noise and Vibration Control Act—Starting January 2014

Posted by [Bindu Subramanian](#) on Thursday, March 6, 2014

Korean authorities have started to regulate noise levels, starting with portable music players. All imported products have to be tested and certified. Penalties will be applied to products that do not comply with the requirements of approximately KRW 3,000,000. Marking requirement or factory inspection is not mentioned in the regulation, but market surveillance is expected.

Technical requirement: KSC 5503 (maximum permissible noise level (100dB) of portable music players / equivalent to EN50335-1).

Required documents:

- Specification of Portable Music Players
- Specification of Earphones used with the player
- Application

Representative of Macau International Airport Attended the 4th ACI Asia-Pacific Regional Environment Committee Meeting on October 3, 2014

Mr. Alex Fong—manager of the infrastructure development department of Macau International Airport Company Limited (CAM)—and Mr. Derek Chan—senior head of quality and environmental division of Administration of Airports (ADA)—joined the 4th ACI Asia-Pacific Regional Environment Committee Meeting, hosted by Hong Kong International Airport on September 25–26, 2014.

Representatives from twelve international airport states in the Asia-Pacific region, Cathay Pacific Airways, and from ACI attended the meeting. In this two-day meeting, the participants enjoyed exchanges and discussions related to environmental issues such as noise control, airport carbon emission, solid waste recycling, and so on.

A site visit to the Hong Kong International Airport was conducted for introducing the environmental-related facilities, including the water recycling plant, solid waste recycling facilities, speed charging point for electric vehicles, solar powered passenger boarding stair, and so on.

Participating in the 4th ACI Asia-Pacific Regional Environment Committee Meeting did not only enhance the communication and cooperation regarding environmental issues among International Airports in the Asia-Pacific Region, but it also was helpful to further understanding the airport environmental development trends.

Japanese Noise Related Links to Japan's Regulations, Environment Law

- [The Basic Environment Law and Basic Environment Plan](#)

The Basic Environment Plan is based on the basic plan for environmental conservation Article 15, the Basic Environment Law, and was decided by the cabinet while consulting the Central Environment Council. It was approved in December 1994. It declared the basic idea for environment policy based on the principles of the Basic Environment Law and four long-term objectives of cycle, harmonious coexistence, participation, and international activities and looking

to the mid-twenty-first century. It also indicated the direction for measures to be taken for the early twenty-first century, to be developed comprehensively and systematically.

- **The Basic Environment Law**

It provides details about basic national policy concerning the environment. It was established on November 19, 1993. It was revised from the Basic Law for Environmental Pollution Control and was added to

the formation of the environmental conservation society and the global environmental protection without consideration of borders or generations as a basic policy.

- **Outline of the Basic Environment Law**

- **Structure of the Basic Environment Law**

- **The Noise Regulation Law**

It was enacted in 1968 and aimed to protect the nation's health by

regulating noise from factories and construction over considerable ranges, as well as deciding the allowable noise limit from cars.

- **Environmental Quality Standard for Noise**

- **Environmental Quality Standard for Aircraft Noise**

- **Environmental Quality Standard for Shinkansen Superexpress Railway Noise** 



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Inter-Noise/NCAD Registration Info

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INCE-USA and ASME NCAD Student Paper Competition
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 Young Professionals Workshop

For More Information, Please Visit: <http://internoise2015.com>



Book Reviews*

* Reprinted from *Noise Control Engineering Journal*

Vehicle Gearbox Noise and Vibration: Measurement, Signal Analysis, Signal Processing and Noise Reduction Measures

Jiri Tuma Wiley, Hoboken, NJ (2014), 260 pages, 120 USD, ISBN: 978-1-118-35941-9

Vehicle Gearbox Noise and Vibration is a book aimed for practicing engineers who are involved in the development and testing of manual transmissions.

This book consists of seven (7) chapters and an index:

- Chapter 1—Introduction
- Chapter 2—Tools for Gearbox Noise and Vibration
Frequency Analysis
- Chapter 3—Gearbox Frequency Spectrum
- Chapter 4—Harmonics and Sidebands
- Chapter 5—Order Analysis
- Chapter 6—Tracking Filters
- Chapter 7—Reducing Noise of Automobile Transmissions.

Each chapter of this book contains diagrams, figures, tables and references.

The first chapter begins by describing pass-by noise legislation as being one of the major problems that an OEM will encounter while developing a vehicle. One of the most significant sources of noise is the radiated noise levels emitted by the transmission gearbox. Unfortunately, axle whine noise, while important for both pass-by noise and interior cabin noise, is not addressed.

Chapter 2 describes the fundamentals of signal processing, the FFT, zoom FFT, windowing and a brief introduction to filters. Chapter 3 introduces the reader to noise signatures of gears, gear mesh frequency, sidebands, gear rattle, periodicity of planetary gears and signatures from bearings. Chapter 4 discusses sidebands from a mathematical point of view, amplitude and phase modulation, the Hilbert transform and Cepstrum analysis. Chapter 5 treats Order Analysis. In Chapter 6, the author reviews both the Kalman and the Vold–Kalman filters. In Chapter 7 the author provides the reader guidelines in how to make a quieted transmission and further discusses pass-by noise testing.

A topic that the author should have emphasized in the writing of this book is that the transmission error (TE) of a gear mesh that is a major source of gear noise. The only hint of TE is given in the final chapter. He briefly describes ways of measuring the TE in the development of a gear set. However, if the reader is not familiar with the practical aspects of this measurement approach, they will not find help here. Also, planetary gears typically found in automatic transmissions are briefly mentioned but omitted are the types of noise signatures that this type of gear emits.

There is no doubt that the author is competent in the subject of gears and the signal processing that is involved in analyzing these gear noise signatures, but he loses the reader by not adequately presenting the material. There are very little practical examples included and he spends a considerable amount of time

covering advanced signal processing topics that in general are not part of everyday testing and development of a “gearbox.” The bridge between designing a quieted transmission, to the vehicle cabin noise, and pass-by noise and legislature are not presented coherently in this book.

Charles D. Glynn
Ford Motor Company,
Vehicle Acoustics and Vibrations, USA
cglynn5@ford.com

An NCAC Anthology in Noise and Vibration

Laymon N. Miller NCAC, Indianapolis, IN USA (2013), 307 pp, \$44.95 softbound, ISBN 978-0-9916242-0-1

NCAC, know what that stands for? If you are in acoustical practice in North America, at least, you know it stands for “National Council of Acoustical Consultants,” which, is “...an international organization [since 1962] committed to supporting the acoustical profession through: recognizing expert Acoustical Consultants and Engineers, promoting opportunities for peer interaction, providing a reference tool for the public to learn more about the profession and to find a consultant matched to their needs.” The NCAC decided to publish this book, of articles collected or authored, or both, by Laymon Miller.

I will try to make this a balanced review and as impartial as I can get. But an upfront confession — On one hand, I applied for NCAC membership and never got accepted, so that is a downer. But, on the other hand I know, respect, and like, most of the members of NCAC and I knew and

liked and respected the late author and just about all of the people to whom the author discusses in the book. My last book review met with comments like: “A miasma of asinine clichés unrivaled in western letters.” While this quote can be interpreted in many ways, according to the editor of NCEJ, it might be best not to use it in print ads.

In keeping with on one hand and the other hand approach — I’ll discuss the contents, then discuss the few minor criticisms I had about the book and finish with the many, many fine points about the book and a summary.

Enough procrastinating — And now to the review, here’s a bit about the physical layout. The soft cover book, almost an inch (2.5 cm), is densely populated. The table of contents has many articles, some as short as two pages, and others around ten pages. There are lots of illustrations and drawings, and there is no index.

The book’s title is a bit misleading — This is not really an anthology of NCAC. Rather it is really, and mostly, a collection of maybe all of the Miller’s published writings (he was prolific). There are more than 80 “chapters.” Each article is mostly by, but sometimes about, Miller. Also, it contains a few articles by others including writings by Leo Beranek, Eric Ungar and Eric Wood.

The chapters are generally chronologically organized — but not always — and the subjects range from office acoustics to World Trade Center rescues, to aircraft noise, to HVAC noise, to vibrations, and to philosophy. Did I miss some topics? Oh yes... tributes to people, experiences as an expert witness, and so much more.

The front inside page is titled, “An NCAC Anthology in Noise and Vibration — Laymon N. Miller: in Two Parts.” Huh? Two parts? That was different than the

title of the book and a bit confusing. It took a few minutes to unravel the deep mystery. After an Introduction by Neil Shade and a Preface by Kerrie Standlee, there is a title (or subtitle) page by Miller called “My acoustics toolbox: Filled with Decibels, Hertz, and Memories with Occasional bits of Boldness and Courage.” That really summarizes the essence of the remaining pages of the book, and then the solution to the mystery of the “parts” mentioned on the front page is solved.

Part 1 consists of published articles, including those in journals and magazines and is about 130 pages in length. It covers the articles from 1957 to 2008, more or less chronological, reproducing articles from

- Machine Design,
- Architectural and Engineering News,
- Noise Control,
- A memo — Port Authority of New York and New Jersey,
- Heating Piping and Air Conditioning,
- Sound and Vibration,
- Acoustics Today, and
- Maybe I missed a few.

Also, scattered throughout are Miller’s personal introductions to the topics. I think a surprising and enlightening feature in these reproductions is that some of the drawings we see today are found in contemporary papers and publications.

Part 2 is mostly a collection of articles published in “NCAC Newsletter” and covers the rest of the book. This selection covers the period 1996 to 2012 and includes an article by Leo Beranek and Noral Stewart.

So, back to the hands — On one hand the book is frustrating to read. It is hard to find stuff, especially without an index and with the articles in the Table of Contents

vaguely called “Just think” (p. 146) and “President’s Message” (p. 174). The chapters are loosely organized, although perhaps the best it can be, given the wide variety of subjects covered. Also, it took some time to figure out why the book was in two parts. But on the other hand, the book is wonderful. It contains a bunch of old articles that are as relevant today as they were many years ago. The articles are well-written, enjoyable, and filled with information, some of which I forgot but a lot which I never knew. All of the people written about, or who authored articles, are highly-respected, knowledgeable acousticians.

I’m glad to have this book. I recommend this book to all readers of this Journal. Those of us geezers who have practiced acoustics most of the time interval this book covers will much appreciate a lot of the works shown in the volume. Those younger acoustical engineers will do well to read this book — there is a lot to learn in almost every “chapter.”

Buy the book. It is inexpensive enough and, if you are lucky enough, and qualified enough, to be an NCAC member, you get a good discount.

*Richard J. Peppin
Engineers for Change, Inc.,
PeppinR@asme.org*

Hear Where We Are: Sound, Ecology, and Sense of Place

Michael Stocker Springer, New York, (2013), 200 pp., 29.00 USD, softbound, ISBN 978-1-4614-7284-1

It started off badly — a 1–1/2 page section “In Praise of Hear Where We Are.” Really, do we need to see this somewhere else beside the advertisements? Perhaps I should have started this review with: “This review is the finest I have ever read (name withheld upon request).”

The main purpose of this book is “to lead us back into a stronger appreciation of the world in which we live.” While quite optimistic and far-reaching, this book, for me at least, meets its purpose.

This densely written paperbound consists of five sections, each with about eight chapters of a few pages each.

1. Hear Here: The impact of sound on personal placement
2. The song of creation
3. What is this thing called “sound?”
4. Sound menagerie: other animals’ sound perception
5. Communication: sound into form

Interspersed with illustrations and followed by 20 pages of notes is a section “About the Author” and an index.

As means of an introduction, the author discusses the effects of sound in our lives, the normal things like the sound of raindrops, of people you know entering the house, the quiet when you turn off your computer for the day, and so on. The sounds are intertwined with emotive feelings that they engender. But also sounds allow us to sense what we cannot see: things on the other sides of barriers and things happening in the dark. Sound, according to the author, allows us to gage size, shape, density of our surroundings and our place within it. Readers of this Journal know this, and the introduction, though, sets the stage for the more subjective and descriptive treatments to come.

1 HEAR HERE: THE IMPACT OF SOUND ON PERSONAL PLACEMENT

This section is about how we (humans) are affected by sound. This is perhaps best enjoyed by those involved with personal perception of sounds, natural and person-made, triggering calm, fear,

comfort, and so on. I cannot buy the author’s concept of a great “array of silences,” but I guess this makes sense in the psychoacoustics community. He does describe silences in terms of background environment and perhaps the psychological effects are different. Is it the silence? In the treatment of alarms the author states auditory signals will trigger reaction faster than visual ones, just one of the things I learned from this book.

2 THE SONG OF CREATION

This section is more about the subjective responses to sounds and noise, much from the history of religious aspects. I found the discussion of “sound and warfare” most interesting. That war is more than death, destruction, and other forms of misery: it includes, as we see know (September 2014) the sounds of threats, of bellicose talk, and of intimidation, usually as a precursor to the mayhem but also during its conduct. “Our” superior cause, our superior weapons, and our expected victory always go along with the seemingly endless conflicts humans seem to use as a way to make their life better. Sound in war was used to intimidate enemies back during the “pipe and drum” era alerting enemy to advancing military to the use of exposure of extremely loud noise to torture prisoners by the US in Iraq.

Also discussed is the effects of sound on healing where author discusses how music and voice (speech and singing) are ways to help heal.

3 WHAT IS THIS THING CALLED “SOUND?”

At last — here is the part of the more scientific treatment in the book. This is a good, but very elementary, treatment of sound. All readers of this Journal will know about this. But still, it is valuable — it discusses the information we could use to explain sound to laypersons. It reinforces that the real important concept,

wavelength, not frequency, is the most important factor in the effects of sound on solid objects.

In this section physiological acoustics, hearing, effects of sound on the ear, etc. are discussed. This is a great material for those of us giving seminars to students, technicians, or if necessary, our spouses or partners. This is a wonderful, short treatment of the topic, and it makes the book worth buying.

4 SOUND MENAGERIE: OTHER ANIMALS’ SOUND PERCEPTION

As the title suggests, this is perfect for those in animal acoustics. Fish and marine mammals, whales and dolphins, and land-mammals, and flying creature’s ears are discussed. The propagation of sound in the nonhomogeneous, anisotropic ground is of concern to rodents and other ground dwellers. Even insects are discussed.

5 COMMUNICATION: SOUND INTO FORM

This last chapter deals with using sounds to send information. It includes transmission between humans, between insects, and between animals.

In summary, this is a readable and enjoyable book. It has not much noise control. It is descriptive more than analytic and is a nice compilation of topics with which we in noise control engineering have less familiarity: human perception of sounds, soundscape studies, and psychological, physiological and animal acoustics.

This book is highly recommended. It is a steal at the price.

Richard J. Peppin
Engineers for Change, Inc.
USA
PeppinR@asme.org

Towers, Turbines, and Transmission Lines: Impacts on Property Value

Edited by Sandy Bond, Sally Sims and Peter Dent Wiley-Blackwell, Hoboken, NJ, (2013), 352 pp., 130.00 USD, ISBN 978-1-4443-3007-6 (hardbound)

1 OVERVIEW

The primary audience for which *Towers, Turbines, and Transmission Lines: Impacts on Property Values* was written is property valuers, that is, real estate appraisers and others responsible for estimating the value of real property. The goal was to provide these specialists with a practical reference that would be helpful to them in understanding and analyzing the effects that nearby electric transmission lines, cell phone towers and wind farms might have on the value of properties they are asked to appraise. The authors indicate that given the unsubstantiated and overblown assertions that are often made about the potential property value effects of these classes of facilities, it was particularly important for them to "...examine the facts as they relate to property values in an unbiased and rational way, giving a balanced view..." (p. 34). To achieve this objective, the authors begin with a chapter that provides an overview of the methods used to determine property value effects (sales comparisons, regression analysis, hedonic modeling, spatial hedonic modeling and qualitative analysis and triangulation). This is followed by a very strong chapter that reviews the theory and research findings related to risk perception, stigma and behavior, with a focus on the relationship of this body of theory and knowledge to property value issues. The remainder of the book consists of a set of three sections that provide an overview of the potential property value issues associated with transmission lines, cell towers and wind farms, and a summary of the empirical research that has been

undertaken in an effort to tie down the effects that these three facility types have had on the actual sales prices of properties in their vicinity. A conclusions chapter provides a systematic recap of the issues and research findings. The conclusions chapter ends with a brief discussion about the current state of knowledge and the implications of this knowledge for the approach that property value practitioners need to take when they prepare appraisals for properties located near these facilities.

Overall, *Towers, Turbines, and Transmission Lines* is clearly written, making it easy to read and to understand, even for the non-specialist. The three editors of the book are academics specializing in property value issues, one from New Zealand, and two from the United Kingdom. In addition, several of the individual chapters were prepared by researchers from the United States. Given the makeup of the editorial team, the book understandably focuses nearly exclusively on the theory and research generated in the English-speaking world, more specifically the UK, North America, Australia, and New Zealand. The sections on transmission lines, cell towers and wind farms each include chapters that focus on the research undertaken in the UK, New Zealand (and in some cases Australia as well) and North America. A downside of this effort to provide equal coverage of the research done on the three facility types in these three parts of the world is an unevenness in the relevance of the chapters. In some cases, the research done in a facility type in a particular region has been limited. As a result, the chapters prepared for regions where limited research has been done end up providing detailed presentations of studies for which brief summaries would have been adequate. In addition, the division of the research review into the sections on the three regions gets in the way of development of a more integrated and systematic review of what the

available research can tell us. This criticism aside, the book is a reasonably accessible summary of much the available English language research.

A strength of this book is the three introductory chapters that provide the conceptual framework for understanding the role that facilities that could be considered to be potentially undesirable neighbors might play in affecting the sales prices of nearby properties and the concepts and analysis methods that are useful in analyzing the effects. As the methods chapter correctly points out, the sales comparison method, which has been the traditional tool of appraisers, does not always provide an adequate basis for establishing what these effects might be because it is not able to disaggregate effects and pinpoint the marginal effects of proximity to the facility types the book is concerned with. As a complement, if not replacement for, the sales comparison approach, the methods chapter emphasizes the application of more sophisticated analysis tools, particularly hedonic modeling and its variants. Hedonic modeling essentially entails regression analysis of a large sample of actual sales to tease out the effects on sales prices of specific attributes of the property. Using data that can be generated through field observations, and increasingly through use of ever more powerful GIS tools, the attributes analyzed can include proximity to nearby features like transmission lines, cell towers and wind farms, the visibility of these features from the property, and the effects of these facilities on the nature and quality of views seen from the property. The methods discussion concludes that these more advanced methods are essential "For a property professional to provide advice based on robust analysis of all the factors likely impact on the value of a property..." (p. 22). In a way, this conclusion is incomplete in that it does not explicitly acknowledge the fact that for some time, the hedonic modeling approach

has been the favored approach for research by professionals and academics for identifying the effects sales prices of proximity to transmission lines and similar facilities¹ and has essentially become the accepted paradigm for valid property value impact research.

2 TRANSMISSION LINES

Transmission lines are the facility type for which most of the research has been conducted and the overwhelmingly largest percentage of that research has been conducted in North America. As a consequence, the chapter that reviews the transmission line research in North America is the meatiest of the research review chapters in the book. In the US and Canada, a dozen or two studies have been prepared that use hedonic modeling to analyze the data on the sales of large numbers of residential properties located near transmission lines to identify the role of proximity to a transmission line has on the prices at which the properties were sold. The chapter's summary of this research notes that the set of studies reviewed has found that for properties located proximate to transmission lines, there can be a decrease in property values that ranges from 1% to 12%, and that the degree of impact decreases with increasing distance from the transmission line. The summary also highlights a number of studies that have found that when the transmission line rights-of-way provides an open space value (in areas between transmission towers where there is an unobstructed, open view, and in areas where the right-of-way has been landscaped and provided with walking paths and other amenities), there can be a positive effect on property values. A limitation of the chapter on the North American transmission line research is that by packing the reviews of all of the research studies into a single 12-page chapter, it does not do justice to the richness of this body of research. For

example, there is not enough description of the data used in each of the analyses, how it was generated, and of the physical settings in which the research took place. In contrast, the chapters on transmission line research in the other two regions describe the research in extensive detail and use maps and photographs to convey a sense of the appearance of the neighborhoods in which the studies took place and the physical relationships between the transmission lines and nearby residences.

The introduction to the section on transmission line impacts explains that in New Zealand and the UK, the legal status of the land on which transmission lines are sited is different from what it is in North America.

In the U.S. and Canada, transmission lines are generally located in rights-of-way, where building construction is restricted, while in the UK and New Zealand, because there is no requirement for a right-of-way, development can take place under transmission lines. As a result, because the situations are so different, it is hard to compare the results of transmission line property value impact studies conducted in North America with those conducted in these two countries.

The chapter on transmission line impacts in New Zealand describes two studies: one, an analysis of sales prices using hedonic modeling, and the other, a survey-based study of resident perceptions of the effects of a transmission line in their neighborhood. Both studies replicated the study designs of similar studies previously undertaken in North America. The analysis of sales prices found that for properties located within 10 to 15 meters of a transmission structure, sales prices were decreased by 20%, but that with increasing distance, the impact tapered off, and at 50 meters, the decrease in sales price was 5%. The perception study found that the

respondents think about the transmission line in negative terms, that those who live close to the transmission line are more likely to think of it in negative terms than those who live further away, and that the respondents' primary concerns about the transmission line were its potential effects on property values, health and aesthetics.

In the UK, the research on the impacts of transmission lines on property sales values has been limited because until recently in England and Wales, the data on property sales prices and property characteristics that is necessary to conduct such studies have not been available. It is still difficult to obtain information on property characteristics, which can only be assembled through time-consuming research using other sources. As a consequence, putting together the kind of data set required to conduct a large-scale and thorough property value impact study using hedonic modeling is very time-consuming and expensive, which has discouraged the execution of the kinds of hedonic modeling studies that have become the norm in North America. The chapter on transmission line impacts in the UK presents the results of a single study, which is documented in some detail. It evaluates the impacts of a transmission line on the sales prices of residences in a suburb of Glasgow, Scotland where there is a 275 kV transmission line located in a green strip that has an appearance comparable to that of a North American transmission line right-of-way. This study found that the values of properties located within 100 meters of a transmission tower were decreased by 17% to 24%, and that the degree of impact decreased with distance from the tower. It also found that residences located in areas along the transmission alignment that were not close to the towers experienced an increase in value, presumably because of the increased privacy and amenity provided by the open strip in which the transmission line was located.

3 WIND FARMS

There has been considerably less research on the property value impacts of wind farms than there has been on the effects of transmission lines. The most substantial work analyzing the relationships between wind farms and property values has been conducted in the United States. The chapter on wind farms in North America was written by Ben Hoen of Lawrence Berkeley Laboratory (LBL), who was the lead researcher for a very large LBL study of wind farm effects on property values. The North American chapter makes a brief review of approximately 20 or so studies of various kinds and levels of quality that had explored wind farm property values, primarily with an eye toward identifying the kinds of variables these studies found to be important and the kinds of relationships among them that were found. Most of the chapter consists of an exposition of the LBL study that evaluated property values in the areas around 24 wind farms located in a range of locations across the US. Because of the number of study sites used, the data set was large, consisting of nearly 7,500 sales transactions. For each sale, a large set of variables was assembled on the characteristics of the property involved. An innovative and very important dimension of this data set was the two view variables that were created, one that classified the relative visibility of the turbines in the nearby wind farm, and the other, called "vista," that classified the visual quality of the view. The data set was subjected to intensive and sophisticated analysis. The analysis tested the potential effects of three kinds of stigma that might be associated with proximity to wind farms.

1. Scenic vista stigma was defined as the concern that the value of a home would be decreased by the visibility of a wind facility within an otherwise scenic vista seen from the property.
2. Area stigma was defined as the concern that a wind facility would

make the overall area surrounding it appear more developed and that this perception that the area has become more highly developed could adversely affect home values, regardless of whether any individual home has a view of the wind turbines.

3. Nuisance stigma was defined as adverse impacts such as noise and shadow flicker that would only affect residents of homes located very close to turbines. It is important to note that in analyzing nuisance stigma, there was no use of data based on actual noise measurements in the study areas or identification of areas in which shadow flicker is experienced. Instead, distance was used as a surrogate, and the analyses of nuisance effects focused on the changes in sales prices in the zones within 0.25 mile to 1 mile from the closest turbines.

The results of the LBL analysis determined that there is no statistically significant relationship between any of the three stigma conditions and the sales prices of residential properties in areas around wind farms.

The chapter on wind farm property value impacts in the UK includes summaries of a number of studies of public opinions about wind farms and their impacts, including impacts on property values. Because these studies captured opinions about wind farms in general and about what the impacts of several proposed wind farms would be, they provide a window on public concerns about wind farms, but they do not provide data useful in establishing what actual effects wind farms have had on the sales prices of nearby properties. The chapter also includes a summary of a small study of sales price impacts in the area around a 16 turbine wind farm in Cornwall where 201 property sales were evaluated. This study found that there was no significant relationship between home sales price and either distance from the turbines or views

of the turbines. The chapter on wind farm impacts on property values in Australia and New Zealand was also handicapped by a limited body of research. This chapter's research review consists nearly entirely of a summary of opinion surveys conducted in three communities in Australia, two in which wind farms have already been developed, and one in which a wind farm has been proposed. The surveys gauged respondent perceptions of the existing wind farms and of the proposed wind farm and their effects. The findings provide a general idea of the kinds of issues that residents living near existing wind farms and proposed wind farms are concerned about and the intensity of their concerns. Interestingly, the residents of the two communities near existing wind farms were generally not concerned about the aesthetic, noise, property value, radio interference or shadow flicker impacts of wind farms, while the residents of the community where a wind farm had been proposed but had not yet been developed expressed somewhat higher levels of concern.

4 CELL PHONETOWERS

It would appear that considerably less research has been conducted on the property value impacts of cell phone towers than the property value impacts of the other two facility types. The overview chapter on cell phone towers and the chapters devoted to issues and research in New Zealand, North America and the UK contain good general overviews of the issues associated with cell phone towers, particularly public concerns about health risks they might pose. The New Zealand chapter reports on a perception study and hedonic modeling study that Sandy Bond, one of the book's editors and the author of the chapter, had conducted in neighborhoods near cell phone towers in the suburbs of Christchurch. The perception study had mixed results. In general, it found that the respondents had negative perceptions of cell phone towers, but that those who lived in the control areas

far from the cell towers had higher levels of concern than those living close to them. The property value analysis evaluated the prices of property sales occurring before and after the construction of the cell towers in each of the neighborhoods evaluated. The analysis of this data determined that in four of the five neighborhoods, the values of properties in close proximity to the cell towers decreased by 15% after the towers were built, and that this effect decreased with increasing distance, becoming nearly negligible after about 300 meters. In the fifth neighborhood, there was a positive increase in price. The chapter on cell tower research in North America summarizes a property value study undertaken in Orange County, Florida that analyzed the sales prices of properties located in the vicinity of 20 cell phone towers. The study found that the cell phone towers had a statistically significant impact on the sales prices of nearby residences, but that the impact was less than 2%, an impact level the researchers considered to be minimal. The chapter on cell phone towers in the UK describes a perception study undertaken in the UK, and a property value study undertaken in Germany. The perception study, which was based on a survey of 161 respondents, found that the concerns expressed about cell phone towers were similar to those often expressed about high voltage transmission lines. The German property value study assessed the effects of nearby cell phone towers on the asking price of condominiums in Hamburg. The study found a decrease in asking price of 2.3% for condominiums located within 100 meters of cell phone towers and a decrease in asking price of 5.7% for units located within 100 meters of clusters of towers. The serious limitation of this study is that it was based on asking prices rather than the actual sales prices. A point underscored in the discussions of potential application of the findings of the available research on cell phone towers is that care is required because the design of cell phone towers has been changing, making the more

recent generations of towers shorter and less visually intrusive. As a consequence, the tower type whose effects were evaluated in a given study may be very different from the tower whose impacts on the value of a nearby property an appraiser needs to assess.

5 NOISE AND PROPERTY VALUES

The value of this book for the noise specialist is probably limited. Noise is mentioned in a general way in the overviews of the potential issues associated with each of the facility types and the results of several opinion surveys may be of interest to some. The noise specialist may find the introductory discussion on risk perception and risk communication of interest. It identifies several factors influencing the fact that "...despite the public's general familiarity with taking risks, some environmental hazards consider to be 'low risk' or to have a 'low probability' of occurring...provoked the most illogical and negative reactions from the public when compared to high-risk activities such as smoking."

Noise receives the most extensive treatment in the review of wind farms in Australia and New Zealand. That chapter devotes several pages to noise and metrics. However, this discussion is lacking in depth that would be of interest to the noise specialist. For example, it does not distinguish between a broadband source of noise which has both low and high frequency content and the classic low frequency noise problem which are typically tonal. For a complex topic, the authors may have been better served to rely on the expertise of an acoustician to summarize the acoustical literature. Of all of the hedonic modeling studies summarized in the book, the only one that made an explicit effort to consider the potential effects of noise on sales prices was the LBL analysis of wind farm impacts

on property values. As mentioned above, it used distance from the closest turbine as a surrogate indicator of potential exposure to turbine noise. It found that even when properties were located within 0.25 miles from wind turbines, where presumably the potential exposure the turbine would be the greatest, there was no statistically significant adverse effect on property values.

Although this book may not be a high priority for addition to the library of most noise specialists, the overview that it provides of the existing body of research on the property value effects of the three facility types sends an important message to the noise impact assessment community. The book's summary of the existing research makes it clear that to date, the role of noise associated with transmission lines, cell phone towers and wind farms in influencing the value of nearby residential properties has not been established in an explicit way. Noise is also mentioned in the summaries of the findings of some of the perception studies that are reported on. The mention of these noise findings is in a way incidental and there is no place in the book where the findings of the perception studies related to noise are summarized in one place and compared, contrasted and related to what is known empirically about the noise generated by each of the facility types and its typical spatial distribution around these facilities.

6 REFERENCE

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*Thomas Priestley CH2M HILL, 9191 South
Jamaico Street, Englewood, CO 80112,
USA Tom.Priestley@ch2m.com*

*Mark Bastasch CH2M HILL, 9191 South
Jamaico Street, Englewood CO 80112,
USA Mark.Bastasch@ch2m.com*

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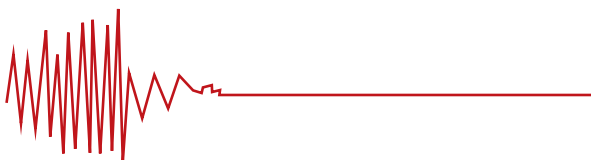
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[Read more.](#)

New Features for the Norsonic Acoustic Camera Software

The new Nor848 Acoustic Camera software update brings several new features, including the possibility to remove any unwanted sources using an Eraser. The Eraser become highly effective when multiple noise sources

are present but only a single one needs to be analyzed. Another new feature, a Spectrogram, helps users identify sounds in the spectrum and look at time windowed FFT.

[Read more.](#)

Wireless Accelerometer from GTI Predictive Technology

GTI Predictive Technology has released a new wireless accelerometer compatible with its iPad-based vibration analyzer apps.

[Read more.](#)

Sound Seal Sound Seal Performs Acoustic Paneling Installation at Smith United Methodist Church

Sound Seal, a leading manufacturer of acoustical and noise control products serving the industrial, architectural, commercial, and construction industries, announced today that Smith United Methodist Church in North Carolina chose its S-2000 Acoustical Wall and Ceiling Panels to help combat poor acoustics in the institution's multi-purpose activity room.

"Finding a way to allow Smith United Methodist Church to maximize the use of their multi-purpose room without having to perform extensive, high-cost renovations was the principal focus of this project," said Dave Ingersoll, project manager for Sound Seal. "The S-2000 Acoustical wall and Ceiling Panels injected new life into an area of the church that thrives on community engagement and lively conversation. We're thrilled the S-2000 performed like we knew it would while also providing the end result of reducing reverberation time within the space."

For more information, contact Jeff Lavery (jeff.lavery@svmpr.com) or Jill Anderson (jill.anderson@svmpr.com).

XEDI New Social EDI Software Platform XEDI Will Revolutionize the B2B E-commerce Market Place

Award-winning electronic data interchange solutions company XEDI (www.xedi.com) has today announced the highly anticipated US-wide launch of its new cloud-based global EDI platform, which is being billed as a big step forward for the often over-complicated world of B2B e-commerce.

With the launch of their new low-cost, subscription-based service, the company is providing a practical all-in-one solution allowing secure and seamless electronic ordering and electronic invoicing featuring multi-user functionality, SSCC barcode support, and a free EDI mailbox for new users as well as enabling high street retailers and suppliers to discover each other and connect together through an exciting social B2B network feature.

AFMG and K-array K-array Launches First System Built for FIRmaker Optimized Use

AFMG's groundbreaking beam steering and coverage control technology FIRmaker has induced a shift in how loudspeaker manufacturers think about system design, beam steering, and coverage optimization. Now, the Italian loudspeaker company K-array launches a new product that fully utilizes the digital powers of FIRmaker optimization. Eight built-in DSP channels per enclosure drive separate sections of, in total, 20 HF, MF, and LMF transducers, resulting in exceptional coverage control and a rated maximum SPL of 145 dB.

[Read more.](#)

INCE Awards

INCE members, associates, and friends,

For 2015 the Institute of Noise Control Engineering (INCE) and the INCE Foundation intend to present three major awards: the INCE Excellence in Noise Control Engineering Award, the Martin Hirschorn IAC Prize – Student Project Award and the INCE Outstanding Educator Award. It is planned to present all of the awards at the upcoming INTERNOISE 2015 meeting in San Francisco, California, in August of this year. This email serves as an invitation to nominate exceptional projects, processes and/or products, outstanding educators and/or submit an applicable student project for these awards, respectively. A brief summary for each of the awards, including submission/nomination deadlines, is provided below.

To receive instructions for an Excellence in Noise Control Engineering Award nomination, Hirschorn Prize Student Project Award submission and/or INCE Outstanding Educator Award for nomination, please send a request to:

Jeffrey L. Fullerton, INCE Bd. Cert.,
LEED AP
INCE Vice President, Honors & Awards
Acentech
33 Moulton Street
Cambridge, MA 02138
617-499-8058
E-mail: jfullerton@acentech.com

For more information about the INCE USA Awards program, including a complete list of past awardees, please see the Awards page at the INCE USA website: <http://www.inceusa.org/about/awards>.

INCE Excellence in Noise Control Engineering Award

Engraved Memento and Honorarium of \$3,000

Nomination deadline: April 6, 2015

The INCE Excellence in Noise Control Engineering Award is intended to provide, and disseminate widely, recognition for an outstanding project, product, or processes in the applied practice of noise control engineering. The project, product or process should demonstrate a significant contribution toward a quieter environment. The precise nature of the project, process, or product is not rigorously defined by policy but is left to the nominator to establish and the judges to evaluate. Some examples of possible nominees may include, but are not limited to the following:

- Innovative consumer or industrial products developed specifically for the purpose of noise control or noise reduction,
- Improvements to existing consumer or industrial projects to significantly reduce noise levels or noise exposure,
- Development of new or improved techniques, materials or products for noise control, for buildings and construction,
- Development or improvement of noise policy, guidance or standards resulting in greater or more consistent noise control engineering application or practice,
- New or innovative techniques used in noise assessment or control for large transportation, energy or industrial

projects, including environmental studies, design or construction projects,

- Development or improvements of tools, equipment, processes, practices, computer programs and applications for use in noise analysis and control.

Nominations may be developed to recognize an individual or group of individuals for closely related contributions which, in the opinion of the nominator, constitute collectively a significant specific contribution to noise control engineering.

The award shall consist of an engraved plaque and an Honorarium of \$3,000.

A suitable nomination package for this award is not trivial and will require some time to prepare, so please request the nominating instructions at least one month before the submission deadline. There will be no extension of the submission deadline.

Martin Hirschorn IAC Prize - Student Award

Award amount: \$4,000 cash prize
Submission Deadline: March 16, 2015

The award is granted as a contribution to the education of a graduate student studying noise control engineering in the United States of America who proposes a project related to an application of noise control engineering and/or acoustical conditioning of architectural spaces. An application must be received for each candidate wishing to be considered for this award which shall contain detailed information about the student and the proposed project including a commitment


to publish the results of the project in a form suitable for the Noise Control Engineering Journal. For complete Award rules and application requirements please contact the INCE Vice-President for Honors and Awards.

INCE Outstanding Educator Award

Award Amount: \$2,000 cash grant
Nomination deadline: April 27, 2015

The INCE Outstanding Educator Award for Excellence in the Teaching of Noise Control Engineering is intended to honor a person who has significantly advanced the technology and practice of noise control engineering through unique contributions to the education of future noise control engineers, as demonstrated by one or more of the following qualifying accomplishments.

1. Excellence in teaching, whether through the inspired dissemination of the principles of noise control engineering, or by inspiring students to attain high achievement in the field of noise control engineering.
2. The notable improvement of tools such as textbooks, handbooks, laboratory experiments, courses, and student projects for the teaching of noise control engineering.
3. Excellence in disseminating the principles of noise control engineering outside of a university setting through the teaching of short courses and seminars; by promoting cooperation among academic, industrial, or government sectors, or with other disciplines; or by advancing the public's understanding of the benefits of noise control technology.
4. Enhancing and diffusing the knowledge of noise control engineering through seminal research, scholarly publications, or patents; or the development of noise control materials, products, techniques, or programs.
5. Providing sustained and effective leadership for the educational programs and activities of the Institute of Noise Control Engineering.

A suitable nomination package for this award is not trivial and will take some time to prepare, so please request the nominating instructions at least one month before the submission deadline. For complete Award rules and application requirements please contact the INCE Vice-President for Honors and Awards. 

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BSWA

Australia: KINGDOM PTY LTD

+61 2 9975 3272
kingdom@kingdom.com.au

Australia: Noise Measurement Services

+61 7 3217 2850
bob@noisemeasurement.com.au

Austria: Ing. Wolfgang Fellner GmbH

+43 1 282 53 43
wf@shallmessung.com

Belgium: ABC International Trading B.V.

+31 162520447
nl@abctradings.com

Canada: Soft dB

+1 418 686 0993
contact@softdb.com

Egypt: Elnady Engineering and Agencies

+20 2 23425763
info@elnadycompany.com

Finland: APL Systems Ltd.

+358(0)442199940
Ville.ilves@apl.fi

France: ViaXys

+33 2 38 87 45 35
oliver.blazere@viaxys.com

Germany: ROGA Instruments

+49 (0) 6721 98 44 54
roga@roga-messtechnik.de

India: Welan Technologies

+91 20 25393126
info@welanotechnologies.com

Ireland: Sonitus Systems

+353 01 2542560/+44 020 81236009
enquiries@sonitussystems.com

Israel: Emproco Ltd.

+972 (0) 8 6718187
sales@emproco.com

Italy: Spectra Sri

+39 613321
ecaglio@spectra.it

Korea: SM Instruments Co., Ltd.

+82 42 861 7004
youngkey@smins.co.kr

Serbia: NORTH Point Ltd.

+381 24 62 62 72
gajins@north.rs

Singapore: SHAMA Technologies (S) Pte Ltd.

+65 6776 4006
shamatec@sigmet.com.sg

South Africa: Vibranalysis Instruments S.A./

+27 118867993 qq +27 115075823
laurence@vibranalysis.co.za

South America: SMART Tech

+55 11 3168 3388
marcelo@smarttech.com.br

Spain: Anotec Consulting S.L.

+34 916 897 540
nico@anotec.com

Spain: PROTOS Euroconsultores de

Ingenieria S.L.
+34 91 747 5891
Kimono.alexio@protos-eci.es

Spain: Uros Ingenieria

+34 91 3329621
Jalon_id@uros.es

Sweden: Acoutronic AB

+46 87 650 280
toby@acoutronic.se

Sweden: Arotate-Consulting AB

+46 708 955150
janos@arotate.com

Sweden: Sound View Instruments

+46 (0) 70 681 79 89
Anders.norborg@soundviewinstr.com

Taiwan: OE SCIENTECH CO., LTD.

+886 -2 25115747
terry@oe.com.tw

Taiwan: Tops Technologies, Inc.

+886 932 068 059
kenlee@topstech.com.tw

Thailand: Geonnoise Instruments Thailand

Co. Ltd.
+66 042 34209
1info@geonnoise-instruments.com

The Netherlands: ABC International

Trading B.V.
+31 162520447
nl@abctradings.com

Turkey: DTA Ltd Sti.

+90 224 280 84 44A
kif.goksa@dtacom.tr

Turkey: VibraTek

+90 0312 479 0302
Ibrahim.Caglayan@vibratek.com.tr

United Kingdom: Sonitus Systems

+353 01 2542560/+44 020 81236009
enquiries@sonitussystems.com

USA: Scantek, Inc.

+1 410 290 7726
PeppinR@scantekinc.com

Campanella Associates

USA: Campanella Associates

+1 6140 876 5108
a.campanella@att.net

NTI

Australia: Amber Technology Pty Ltd

+61 2 9452 8600
lhart@ambertech.com.au

Austria: Wien-Schall GmbH

+43 1 811 55 100
proaudio@wienschall.com

Bahrain: ATEIS Middle East FZCO.

+971 4 6091325
info@ateis.ae

Belgium: Belram sa/nv

+32 2 672 95 90
info@belram.com

Brazil: NTI Americas Inc.

+1 503 684 7050
ntisales@ntiam.com

Bulgaria: ATC Ltd.

+35 988 9528 649
hlebarovg@dir.bg

Canada: NTI Americas Inc.

+1 503 684 7050
ntisales@ntiam.com

Chile: NTI Americas Inc.

+1 503 684 7050
ntisales@ntiam.com

China: NTI CHINA CO.,LTD.

+86 10 5791 0038
china@nti-audio.com

Czech Republic: NTI Audio Praha

+420 2209 99992
info@ntipraha.cz

Denmark: Kinovox Pro ApS

+45 44 53 3011
ck@kinovox.dk

Estonia: EW Sound & Light Vaarmann OÜ

+372 6612 768
ewsound@ewsound.ee

Finland: Noretron Components Ltd.

+358 (10) 525 8000
ari.nissinen@noretron.fi

France: SCV AUDIO

+33 1 486 322 11
f.voffray@scv.fr

Germany: Hermann Adam GmbH & Co. KG

+49 8131 2808 0
info@adam-gmbh.de

Germany: Schalltechnik Süd & Nord

GmbH
+49 201 5456 980
besselmann@akustiktest.de

Germany: Schalltechnik SÜD & NORD

GmbH
+49 941 94 555 85
kotterer@akustiktest.de

Greece: Bon Studio S.A.

+30 210 380 9605 8
bon@bonstudio.gr

Hungary: Elimex Kft

+36 1 239 8270
zsofi@elimex.hu

India: AVF Distributors (I) Pvt. Ltd.

+91 22 2405 1686
info@avfindia.com

India: AVF Distributors (New Dehli)

+91-11-2 874 11 31
info@avfindia.com

Indonesia: Santika Multi Jaya

+62 21 6583 3535
andre@cbn.net.id

Iraq: ATEIS Middle East FZCO.

+971 4 6091325
info@ateis.ae

Israel: Sontronics Electr. Equipm. Ltd

+972 3 570 5223
sales@sontronics.co.il

Italy: Spectra SRL

+39 039613321
info@spectra.it

Japan: NTI Japan Limited

+81 3 3634 6110
okayasu@nti-japan.com

South Korea: NTI Audio Korea

+82 2 6404 4978
korea@nti-audio.com

Latvia: Audio AE Ltd.

+371 67807310
audioae@audioae.lv

Lithuania: Mideaudio Ltd.

+370-37-223288
sales@mideaudio.com

Malaysia: TekMark Broadcast Sdn Bhd

+603 9057 8999
gs.wong@tekmarkgroup.com

Mexico: NTI Americas Inc.

+1 503 684 7050
ntisales@ntiam.com

Netherlands: TM Audio Holland B.V.

+31 30 2414070
reinier.bruijns@tmaudio.nl

New Zealand: Amber Technology (NZ) Ltd.

+64 9 443 0753
ross@amber.co.nz

Norway: Benum siv. ing. AS

+47 2213 9900
post@benum.com

Poland: Konsbud Audio Sp. Z O.O.

+48 226 44 3038
info@konsbud-audio.com.pl

Portugal: Arestel S.A.

+351 213 030 850
audiovideo@arestel.pt

Romania: db Technolight

+40 268 331 410
dan@dbt.ro

Russia: I.S.P.A. Russia

+7 495-784-75-75
ispa@ispa.ru

Singapore: d&b Audiotechnik S.E.Asia Pte

+65 67952268
info.asia@dbaudio.com.sg

Slovakia: NTI Audio Praha

+420 2209 99992
info@ntipraha.cz

Slovenia: AVC Slovenia

+386-1-530 78 70
jani.medic@avc-group.si

International Representatives

South Africa: Wild & Marr
(Johannesburg)
+27 11 974 0633
info@wildandmarr.co.za

Spain: Neotécnica, S.A.
+34 91 542 09 00
neotecnica@neotecnica.es

Sweden: Sennberg AB
+46 8 566 16400
stephan.segermark@sennberg.se

Switzerland: Contrik AG
+41 44 736 50 10
contrik@contrik.ch

Taiwan: NTI CHINA CO.,LTD.
+86 512 6802 0075
china@nti-audio.com

Thailand: Vichai Trading Co., R.O.P.
+662 559 0956 8
victorco@truemail.co.th

Turkey: SF SES VE Isik Sistemleri Ltd
+90 212 227 6800
samimm@sf.com.tr

Ukraine: Real Music Ltd.
+380-482 347382
realmusic@realmusic.ua

United Kingdom: Neutrik (UK) Ltd.
+44-1983-811 441
sales@neutrik.co.uk

USA: NTI Americas Inc.
+1 503 684 7050
ntisales@ntiam.com

Odeon

Denmark: Odeon A/S
+45 8870 8845
info@odeon.dk

Rion

China: Shanghai Rion Retail Co.,Ltd.
+86-21-6125-6840
info-china@sh-rion.com.cn

Korea: SR Tech Co., LTD.
+82-31-754-8481
sunilrion@sunilrion.co.kr

Taiwan: Ring-In Trading Development
Co., LTD.
+886 2 2381 6767
ringin@ms6.hinet.net

Hong Kong: Science International
Corporation
+852 2 543 7442
tonyleung@scienceintel.com

Hong Kong: Che Scientific Co.(Hong Kong)
Ltd. (Distributor for Viscotester)
+852 2481 1323
sales@chescientific.com

Malaysia: O'Connor's Engineering Sdn.
Bhd
+60 3 7953 8400
rafizahb@oce.com.my

Singapore: O'Connor's Singapore Pte LTD.
+65 6470 4712 (DID)
gary.lim@oconnors.wearnes.com

Thailand: Sithiporn Associates Co., LTD.
+66 2 433 8331
sa-epd@sithiporn.com, somchit@
sithiporn.com

Vietnam(Hanoi): Technical Instrument &
Consultant Technology (TECOTEC)
(+84-4) 35763500 / 35763501
bachtuanhien@tecotec.com.vn, hanoi@
tecotec.com.vn

Vietnam(Ho Chi Minh): MT Scientific
Equipment Co., LTD.
(+84 8) 3 86 460 51
mtse@hcm.vnn.vn

Indonesia: PT Transindotama Sinar
Perkasa
+62 21 4584 0670 / 4584 0671 / 4584 0672
transindotama@transindotama.com,
transindotama@gmail.com

India: Mecord Systems and Services Pvt
Ltd
+91 22 25007552/ 25008128
info@mecord.com, sales@mecord.com

United Kingdom: ANV Measurement
Systems
+44 1908 64 28 46
info@noise-and-vibration.co.uk

Ireland: Industrial Acoustics Company Ltd.
+353 1 2828043
info@iacl.ie

France: ViaXys
+33 2 38 87 45 35
Fax : +33 2 38 87 41 33
olivier.blazere@viaxys.com

Finland: MIP Electronics Oy
+358 10 3222633
jouni.lukkari@mip.fi

Netherlands Belgium Luxembourg:
Sysmex Nederland B.V.
+31 76 508 60 00
stuart.ben@sysmex.nl

Germany: ZINS Ziegler-Instruments GmbH
+49 / (0)2166 / 1898 220
sales@ziegler-instruments.de

Turkey: Cev-Tek Ltd Sti
yunus@cevtetek.com.tr

Greece: ACOUSTIC SCIENCE O. E.
+30 210 8053121
info@acoustic-science.gr

**Austria Czech Hungary Slovakia
Slovenia:** LB-acoustics Messgeraete
GmbH
+43 1 259 34 44 4400
Office@LB-acoustics.at

Sweden: Acoutronic AB
+46 8 765 02 80
info@acoutronic.se

Switzerland: A - TECH testing GmbH
+41 56 634 26 26
info@a-tech.ch

Italy: VIBRO-ACOUSTIC
+39 049 9200 975
g.m.amadasi@scs-controlsys.com

Italy: ntek s.r.l.
+39 334 16 66 958
info@ntek.it, amministrazione@ntek.it,
commerciale@ntek.it

Spain: ALAVA Ingenieros S.A.
+34 91 567 97 00
rsanmillan@alava-ing.es

Portugal: M.R.A. Instrumentacao S.A.
+351 21 421 74 72
n.dias@mra.pt

Poland: EKOHIIGIENA APARATURA Sp.
zo. o.
+48 71 31 76 850
rputyra@ekohigiena.com.pl

Romania: Spectromas SRL
+40 21 310 10 95
info@spectromas.ro

Norway: PJA-service AS
+47 66 77 11 55
preben@pja.no

USA Canada Mexico: Sage
Technologies, Inc.
+1 310 338 7200
info@sagetechnologies.com

USA Canada Mexico: Scantek Inc.
+1 410 290 7726
info@scantekinc.com

Argentina: HIKARI S. A.
+54 11 4811 5767, +54 11 4815 2968
cientifica@opticagriensu.com

Chile: Sociedad Acustical S.A.
+56 2 22699318
laboratorio@acustical.cl

Australia: Acoustic Research Labs Pty Ltd
+61 2 9484 0800
acoustic1@acousticresearch.com.au

New Zealand: Machinery Monitoring
Systems LTD.
+64 9 623 3147
mamos@xtra.co.nz

Republic of South Africa:
Environmental Instruments International cc
+27 21 914-4408
env.inst@iafrica.com, chris@envinst.co.za

Scantek, Inc.

Mexico and South America: CIAAMSA
División Acústica
+55 1054 3209/+55 1054 3210
nbenitez@ciaamsa-acustica.com

SoundPLAN LLC

Argentina: Dakar ingenieria acustica
Argentina
+54 (11) 4631 5691/+54 (11) 4 865 79 84
soundplan@dakar-acustica.com.ar

Australia: Marshall Day Acoustics
+612 9282 9422/+612 9281 3611
bmartin@marshallday.com.au

Brazil: GROM Acustica & Automacao
+55 212516 0077/+55 21 2516 0308
comercial@grom.com.br

Canada: Navcon Engineering Network
+1 714 441 3488/+1 714 441 3487
Forschner@navcon.com

China: BSWA Technology Co., Ltd.
+86 10 62526360/+86 10 82251626
conghaidong@bswa.com.cn

Chile: Sinruído
+562 2398736
lng.mora@gmail.com

Columbia: High Tec Environmental Ltda
+57 1 6713700/+57 1 6713700x100
soporte@hteltlda.com

Czech Republic: SYMOS s.r.o.
+42 220 999 977/+42 257 225 679
symos@symos.cz

Denmark: SoundPLAN Nord
+45 (39) 46 12 00/+45 (39) 46 12 02
jkl@soundplan.dk

Egypt: Elnady Engineering and Agencies
+20 2 23420896/+20 2 23421791
info@elnadycompany.com

Egypt: Elnady Engineering and Agencies
+2 (02) 23420896/+2 (02) 23426977
info@elnadycompany.com

Finland: SoundPLAN Nord
+45 (39) 46 12 00/+45 (39) 46 12 02
jkl@soundplan.dk

France: Euphonia
+33 02 40 18 05 18/+33 02 40 19 05 20
bsuner@euphonia.fr

Germany: Braunstein + Berndt GmbH
+49 7191 91 44 0/+49 7191 91 44 24
bbgmbh@soundplan.de

Greece: I Acoustics Hellas
+30210 6630 333/+30210 6630 334
dpramas@acoustics.gr

Hungary: VIBROCOMP GmbH
+36 1 3107292/+36 1 3196303
bitep@vibrocomp.hu

India: Foretek Marketing Pvt. Ltd.
+91 80 2525 4706/+91 80 2525 6813
info@foretek.in

Italy: Spectra s.r.l.
+39 039 613321/+39 039 6133235
spectra@spectra.it

Ireland: Marshall Day Acoustics
+44 28 308 98009/+44 788 540 6961
shane.carr@marshallday.co.uk

Israel: RTA Engineering Ltd.
+972 51 414 8162/+972 (0) 77 6499964
Ronon@rtang.com

Indoneisa: Pt.Dananwingus Sakti,
+628161812871
Antonius.wira@ptdws.com

Japan: Ono Sokki Co., Ltd.
+81 45 935 3818/+81 45 935 3806
Watanan@onosokki.co.jp

Kenya: Machoy cc
+27 214245719
machoy@iafrica.com

Korea (South): ABC TRADING
+82 2 2226 3161/+82 2 2226 7383
ykleee@abctrtd.com

Kuwait: Elnady Engineering and Agencies
+20 (02) 23420896/+20 (02) 23426977
tamer@elnadycompany.com

Malaysia: Acoustics & Environmental
Solutions
+65 6776 2212
aes@aes-aes.com

Mexico: Ingenieria Acustica Spectrum Sa Cv
+52 55 55 67 08 78/+52 55 53 68 61 80
acusticaspectrum@prodigy.net.mx

New Zealand: Marshall Day Associates
+64 9 379 7822/+64 9 309 3540
siiri.wilkening@marshallday.co.nz

Norway: SoundPLAN Nord
+45 (39) 46 12 00/+45 (39) 46 12 02
jkl@soundplan.dk

Peru: Global Group S.A.
+51 1 4464627
Cervetto@globalgroupsa.com

Poland: PC++ Software Studio S.C.
+48 606 110 270
support@pcplusplus.com.pl

Portugal: AAC Centro de Acustica Aplicada SL
+34 45 29 82 33/+34 45 29 82 61
aac@aacacustica.com

Romania: Vibrocomp Kft
+40 723 614 524/+36 1 3196303
bitep@vibrocomp.hu

Russia: Baltic State Technical University
+7 812 7101573/+7 812 2988148
marina_butorina@inbox.ru

Serbia: Dirigent Acoustics D.O.O.
+381 11 28 50 601/+381 11 763 887
dgtdejan@yahoo.com

Singapore: Acoustics & Environmental Solutions
+65 6776 2212
aes@aes-aes.com

South Africa: Machoy cc
+27 214245719
machoy@iafrica.com

Spain: AAC Centro de Acustica Aplicada SL
+34 45 29 82 33/+34 45 29 82 61
aac@aacacustica.com

Sweden: SoundPLAN Nord
+45 (39) 46 12 00/+45 (39) 46 12 02
jkl@soundplan.dk

Thailand: Geonnoise Instruments Thailand
+662 860 2699/+662 860 3600
soundplan@geonnoise-instruments.com

Taiwan: Purtek Engerprise Co Ltd.
+886 2 2769 3863/+886 2 2756 7582
purtek@ms13.hinet.net

Turkey: Hidrotek Mimarlik Muhendislik Ltd.Sti,
+90 216 372 20 2/+90 216 384 72 51
aakdag@hidro-tek.com

United Arab Emirates: Elnady Engineering and Agencies
+20 2 23420896/+20 2 23421791
info@elnadycompany.com

United Kingdom: SoundPLAN UK&I
+44 1787 478498
david@soundplanuk.co.uk

USA: Navcon Engineering Network
+1 714 441 3488/+1 714 441 3487
Forschner@navcon.com

Vietnam: Viet Phuong Consultants and Technology J.S Co.
+84 08 3834 5931/+894 08 3834 5928
quoc@vietphuonggroup.com

Zero International

Australia: Hafele Australia Pty. Ltd.
+61 3 9212 2061
djones@hafele.com.au

Canada: Les Agences Real Demers, Inc.
+1 514 387 7515
realdemers@ard.ca

Hong Kong: Zero Asia Pacific
+81 45 567 4117
zeroasiapacific@gmail.com

Australia: Hafele Australia Pty. Ltd.
+61 3 9212 2061
djones@hafele.com.au

Indonesia: Zero Asia Pacific
+81 45 567 4117
zeroasiapacific@gmail.com

Japan: Zero Tokyoman & Co. Ltd.
+048 866-8660
henmi@tokyoman.co.jp

Korea: Zero Asia Pacific
+81 45 567 4117
zeroasiapacific@gmail.com

Malaysia: Zero Asia Pacific
+81 45 567 4117
zeroasiapacific@gmail.com

The Netherlands: Alprokon Aluminum
+31 180 643962
henk.vanherpen@alprokon.com

New Zealand: F.L Bone & Son Limited
+64 873 0282
ian.h@flbone.co.nz

Philippines: Zero Asia Pacific
+81 45 567 4117
zeroasiapacific@gmail.com

Singapore: Zero Asia Pacific
+81 45 567 4117
zeroasiapacific@gmail.com

Taiwan: Zero Asia Pacific
+81 45 567 4117
zeroasiapacific@gmail.com

Thailand: Zero Asia Pacific
+81 45 567 4117
zeroasiapacific@gmail.com

United Arab Emirates: Zero East
+052 152 7406
kazi@zerollc.com

United Kingdom: Zero Seal Systems Ltd.
+44 1785 282910
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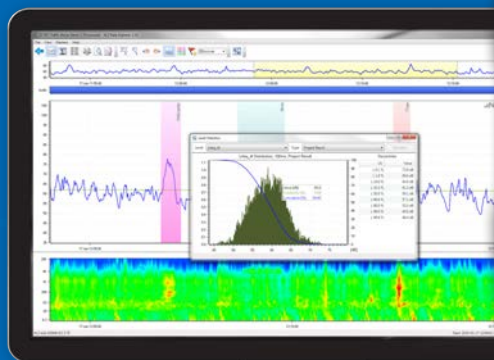
- Sound Level Meter (SLM) with simultaneous and averaged measurements
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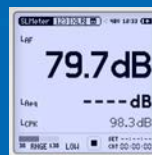
- Percentiles for wideband and spectral values
- High resolution, uncompressed 24 Bit, 48 kHz wave file recording
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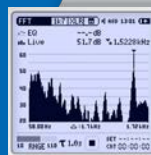
- XL2 Data Explorer post processing software
- Spectral limits evaluation including 1/6th and 12th octave analysis
- Speech Intelligibility measurement (STI-PA)



XL2 Data Explorer



Sound Level Meter



Real Time Zoom FFT



Spectral Limits 1/12th



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United States of America.....	Graduate Program in Acoustics, The Pennsylvania State University, Pennsylvania

Below is a list of congresses and conferences sponsored by International INCE and INCE/USA. A list of all known conferences related to noise can be found by going to the International INCE page on the Internet, www.i-ince.org.

April 20–23, 2015

Wind Turbine Noise Conference

2015 International Congress on Wind Turbine Noise
Radisson Blu Hotel
Glasgow, Scotland
<http://windturbinenoise.com>

May 31–June 3, 2015

EuroNoise2015

2015 EuroNoise Conference
MECC
Maastricht, the Netherlands
<http://www.euronoise2015.eu/>

July 12–16, 2015

ICSV22

22nd International Congress on Sound and Vibration
Firenze Fiera Congress & Exhibition Center
Florence, Italy
<http://icsv22.org>

August 9–12, 2015

INTERNOISE 2015

2015 International Congress on Noise Control Engineering
San Francisco Marriott Marquis
San Francisco, California, USA
www.internoise2015.com

August 21–24, 2016

INTERNOISE 2016

2016 International Congress on Noise Control
Hamburg, Germany
www.internoise2016.org

Directory of Noise Control Services

Information on listings in the Directory of Noise Control Services is available from the INCE/USA Business Office, 100 East Washington Street, Springfield, IL 62701 Telephone: +1 217 528 9945. e-mail: ibo@inceusa.org.
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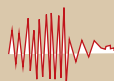
San Francisco Marriott Marquis
780 Mission Street, San Francisco, CA 94103
Room Rate: 259 + Taxes | USD — If Booked BY 17 JULY 2015
[inter-noise.com](http://www.inter-noise.com) Registration Info

Early registration BY 11 June 2015 | 685 USD
Registration AFTER 11 June 2015 | 750 USD
Student Registration | 150 USD
Accompanying Persons | 150 USD

TRB ADC 40 Only Registration:
Early registration BY 11 June 2015 | 375 USD

INCE-USA and ASME NCAD Student Paper Competition
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Young Professionals Workshop

For More Information, Please Visit: <http://internoise2015.com>



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The INCE/USA Page at the Atlas Bookstore

www.atlasbooks.com/marktplc/00726.htm

INTER-NOISE 06 Proceedings

This searchable CD-ROM contains the 662 papers presented at INTER-NOISE 06, the 2006 Congress and Exposition on Noise Control Engineering. This, the 35th in a series of international congresses on noise control engineering was held in Honolulu, Hawaii, USA on December 3-6, 2006. The theme of the congress was "Engineering a Quieter World."

The technical topics covered at INTER-NOISE 06 included:

- Aircraft and Airport Noise Control
- Community Noise
- Fan noise and aeroacoustics
- Highway, automobile and heavy vehicle noise
- Machinery noise
- Noise policy
- Product noise emissions
- Sound quality.

The NOISE-CON 2011 Proceedings Archive (1996-2011)

NOISE-CON 2011 was held jointly with the Transportation Research Board (TRB) ADC40 Committee on Transportation-Related Noise and Vibration on 25-27 July, 2011 at the Marriott Downtown Waterfront Hotel in Portland, Oregon. One hundred forty seven (147) technical presentations were given at the conference and of those, 132 were submitted as written papers that are included on this DVD.

This DVD contains the proceedings of ALL NOISE-CON conferences held since 1996. This includes the years 1996, 1998, 2000, 2001, 2003, 2004, 2005, 2007, 2008, and 2010. Also included are the proceedings of two sound quality symposia, 1998 and 2002. So, including the NOISE-CON 2011 papers, a total of 1621 technical papers are included on this DVD. All papers are in PDF format.



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