**An Online Conference**

**NOISE-CON 2020**

**Week of November 16, 2020**

Preparation of Papers for NOISE-CON Proceedings

Patricia Davies Eoin King

J. Stuart Bolton Acoustics Program and Lab

Ray W. Herrick Labs University of Hartford

140 S Intramural Drive 200 Bloomfield Avenue

Purdue University West Hartford

West Lafayette CT 06117

IN 47907-2031

daviesp@ecn.purdue.edu

# ABSTRACT

Instructions for preparation of manuscripts for inclusion in NOISE-CON and INTERNOISE proceedings are given. This instruction document is set up using the format of a NOISE-CON paper. This document should be used as a template for a paper if the authors wish to use Microsoft Word. Details of the styles used are included to help users of other software packages format their paper correctly. While these instructions are intended to serve as the basis for instructions for all INCE conference papers, there are some specific NC20 pieces of information in this file. Also given is some advice on good practice in writing these types of conference papers, preparation of figures and tables, referencing other authors’ work, and not including blatant advertisements for companies or products. Authors will upload PDF versions of their papers on the conference website. The NOISE-CON technical chairs may ask the authors to revise their manuscript, or they may reject the paper if: it is not of sufficient technical quality; does not address issues related to noise and vibration control; is overly commercial; or the writing and general presentation quality is poor.

# 1 INTRODUCTION

NOISE-CON papers are typically between 4 pages and 8 pages long and written in the English Language. This includes all tables, figures and references. The PDF file must be less the 5 Megabytes and it is preferred that it is smaller than this upper limit. Pages are US letter sized and exact dimensions and margins are described below. Topics for papers include case histories; instrumentation and measurement techniques; noise and vibration standards; reviews of particular areas of noise and vibration control; and theoretical, computational and experimental methods. All papers should be focused on issues related to noise and vibration control, and should bring something new to the noise and vibration community. While not research focused, case histories are welcome because they facilitate understanding of how to put noise and vibration control into practice and highlight potential pitfalls for both more and less experienced noise and vibration control engineers.

 The technical chairs have the pleasure of reading all the papers submitted, hence the page limit. If you would like to expand the paper, you should consider doing so incorporating feedback that you receive at the conference and then submitting it to the Noise Control Engineering Journal (see http://www.inceusa.org and browse the Publications site for more details on journal paper submission and review). While short in length, the conference papers should still have sufficient detail so that the reader can follow the methodology and understand the discussion. Authors must reference and acknowledge the work of others that helped them accomplish the work described in the paper, and also provide references for readers interested in gaining deeper insight into the techniques used.

## 1.1 Structure of the paper

In general, following on from the Abstract, there will be an Introduction section where the problem is described along with a high level discussion of the possible solutions available. This is usually followed by a section where the methodology or technique used to solve the problem is described in more detail. Predictions, simulations or experimental results are often components in the next section, followed by a section that includes a discussion of the results and how they relate to previous work and objectives of current work. The last section in most papers is a Concluding Comments, Conclusions or Summary section that may contain recommendations for future work, and/or comments on the applicability of a proposed technique.

## 1.2 Units and displaying numbers

Use SI units and give other units in parentheses following should you feel the need to do so. Use the decimal point “.” for delimiting the integer and fractional part of a number, and use a comma “,” to group three orders of magnitude together; examples are given in Table 1. Do not use the E that appears in computer output; use 10 raised to the appropriate power instead. Sometimes, when numbers are being compared, it is often easier for the reader if you keep the power of ten consistent across all numbers being compared or, alternatively, keep the decimal points aligned. If this were a table in a paper, units associated with numbers should also be included.

**Table 1:** Illustrations of the use of “.” and “,” in numbers, and ways of displaying numbers that are being compared.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Number** | **Numbers appearingin paper** | **Number** | **Alternative****Format** | **Alternative****Format** |
| one thousand and fifty six | 1,056 | 0.23125x103 | 2.313x102 | 231.25 |
| five and three quarters | 5.75 | 255.323 | 2.553x102 | 255.32 |
| four million, three hundred and twenty thousand | 4.32x106 | 19.516 | 0.195x102 | 19.52 |

## 1.3 General comments about figures and tables

Table and figure captions should be informative. Do not have a figure caption that is only, e.g., “Fig. 1” or “Figure 1” without an explanation of what the figure contains. Similarly, for table captions. When preparing graphics, make sure that all the words and numbers that appear in the graphics (plot, schematic, etc.) are readable; this can be a problem when figures are scaled to fit within the margins. Also make sure that the resolution in the graphics is sufficient to see all the relevant details on the screen and when the paper is printed. Unless it becomes too disruptive to reading the text, embed tables and figures within the text. Since their purpose is to illustrate the discussion, they should appear near the relevant text and as soon as possible after the first reference to that table or figure. If it makes it easier to read your paper, you can put figures and tables after the references at the end of the paper.

# 2 MANUSCRIPT FORMAT

Following are the major page layout, formatting and referencing rules. Times New Roman is used for all text including headings. Times or some other serif font (has the twiddly bits on the letters) can be substituted if you do not have Times New Roman.

## 2.1 Paper size, margins and tab settings

The paper size should be US letter size which is 21.59 cm by 27.94 cm (8½ in by 11 in). Margins are as follows:

* Top and side margins should be set at 2.54 cm (1 in).
* The bottom margins should be 1.90 cm (0.75 in).
* The top margin should be 2.54 cm (1 in).

If it is necessary to use A4 paper size in your document, set the top margin to 2.54 cm, the side margins to 2.2 cm, and the bottom margin to 3.7 cm.

 Tab stops are set up for paragraph indenting (at 0.9 cm or 0.35 in, left justified), centering equations (at 8.25 cm or 3.25 in, centered), entering authors with multiple affiliations (at 5.75 cm and 11.5 cm or at 2.25 in and 4.5in, left justified), and numbering equations (at 16.5 cm or 6.5 cm, right justified) . The tabs used in the styles in use in this document are shown in Table 2.

**Table 2:** Tab positions and fonts in the different styles used in this document.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Style** | **Tab1** | **Tab2** | **Tab3** | **Font** | **Size** | **Justification** |
| Normal | 0.9 cm Left | 8.25cmCentered | 16.5cmRight | Times New Roman | 12 pt | Full |
| Title | None | Times New Roman, bold | 16 pt | Left |
| Author | 5.5 cm | 11.0 cm | ----- | Times New Roman | 10 pt | Left |
| Heading 1 | None | Times New Roman, Bold, All Caps | 12 pt | Left |
| Heading 2 | None | Times New Roman, Bold | 12 pt | Left |
| Heading 3 | None | Times New Roman, Bold, Italic | 12 pt | Left |
| Caption | None | Times New Roman | 10 pt | Full (1 line captions centered) |
| Equation | 0.9 cm Left | 8.25cmCentered | 16.5cmRight | Times New Roman | 12 pt,  | Left(Tabs used to Center) |
| Reference | 0.5 cm hanging indent | Times New Roman | 10 pt | Left |

## 2.2 Title of paper

Leave one blank line after the conference logo and then start the title. The title should be in Times New Roman 16-point. Use upper and lower case (e.g., Sound Attenuation in Confined Environments). The title should be left justified. The style used for the title in this document is “Title”.

## *2.2.1 Author information*

Leave one blank line after the title and then start the author information. This should be left-justified, Times New Roman, 10 pt font, not bold type. Put in the Author's name (first name followed by last name), affiliations, address, and e-mail address. Please do not use blue or underlined type for the e-mail address, i.e., remove any hyperlinks that Word may automatically insert. The style used in this document for Author Information is “Authors”. Authors with separate affiliations should appear as follows:

Patricia Davies Ian Cummings Jennifer Stanley

J. Stuart Bolton Labcoustics Plasticoustics

Ray W. Herrick Labs 203 Langerton Lane 12 Hill Drive, Suite 13

140 S Intramural Drive Boston Minneapolis

Purdue University MA 33990 MN 88709

West Lafayette

IN 47907-2031

daviesp@ecn.purdue.edu

Note only one email address is supplied. It should be that of the primary contact.

## 2.3 Headings

Three heading levels are defined, though you may need to use only one or two. The headings in this document conform to the following definitions, so look at them for examples.

### 1 Main heading level – Style: Heading 1

See “INTRODUCTION” and “MANUSCRIPT FORMAT” headings above as examples of this style. Major headings should be left justified in 12-point, Times New Roman, bold type, all capital letters and numerically ordered. There are 12 pts before the heading and none afterwards. Here this space is incorporated into the style (Heading 1) definition. If you are not using styles, just leave one line blank before this type of heading. The numbering is not inserted in the Heading 1 style, you need to add that manually.

### 1.1 Subheadings: styles Heading 2 and Heading 3

See the “Headings” and “Abstract” subsection headings in this Manuscript Format Section as examples of Heading 2 Styles. See “Main heading level – Style: Heading 1” and “Subheadings: styles Heading 2 and Heading 3” titles in this subsection to see examples of the Heading 3 style.

 Subheadings (if any) should be in 12-point Times New Roman, bold type, left justified and upper and lower case written in a sentence-like style. There is a 6 pt spacing before subheadings and none after.

## 2.4 Abstract

This follows on from the authors’ names and addresses. The Abstract heading does not include a letter or number, but is in the same format as the main heading level (12 pt, all caps, Times New Roman, bold, 12 pt before, 0 pt after). The abstract should be more than 100 and less than 200 words long, one paragraph, and similar to the submitted abstract, but need not be identical.

## 2.5 Text in the main body of the paper: style Normal

The text should be fully justified, 12 pt, Times New Roman. If this font is not available, a similar serif type font may be substituted. The first line in each paragraph should be indented by 0.9 cm (0.35 in), EXCEPT for a paragraph immediately after a heading, which should not be indented.

## 2.6 Acknowledgements: title style Heading 1, text style Normal

These should be after the Conclusions section and before the References section. This section should have a main level heading (Heading 1), but it should not be numbered (Times New Roman, all caps, 12 pt, bold, 12 pt before, 0 pt after).

## 2.7 References: title style Heading 1, text style References

The style for the heading of this section is the main level heading but it is not numbered (Times New Roman, all caps, 12 pt, bold, 12 pt before, 0 pt after). The list of references should be in font Times New Roman, 12pt, and should be ordered numerically in the order cited in the paper. References are described in more detail in the next section. Use superscripts in the text to indicate references, and follow that format for the numbering in the reference list. Reference numbers should be in the order of the citation in the paper.

## 2.8 Figures and tables: caption style Caption

The captions should be font Times New Roman, 10pt. If the caption is one line long, or less, center it. If the caption is longer than one line, the text should be justified, as shown in Figure 1. Make the word Figure and its associated number bold. For example:



***Figure 1:*** *(a) The minimal amplitude elevation necessary to make the Nth order harmonic just audible. (b) Plot of SPL excess calculated by using the algorithm of Terhardt et al.10*

Figure captions should appear below the figure and be presented in italics. Table captions should appear above the table as shown in Table 3 and in the other tables in this document. Spacing for captions is: 6 pts before and 6 pts after the caption. A subtle point about Table 3 is that it would have been better if the rows and columns were switched because it is easier to compare numbers that are in a column, than those in a row.

**Table 3:** Parameter estimates resulting from application of the three system identification techniques. The data used was from the low noise experiment on the 7cm foam cube.

|  |  |
| --- | --- |
|  | System Identification Technique |
| Parameter | Harmonic | Impulse | Random |
| *k1*(*N/m*) | 3,225 | 5,132 | 4,422 |
| *k3* (*N/m3*) | 513,027 | 499,890 | 500,021 |
| *c1* (*Ns/m*) | 250 | 219 | 261 |

 When referring to figures in the text use Figure when starting a sentence and Fig. in other cases. When referring to a table use Table. For example: “The results of the system identification are shown in Table 5. …. From the results shown in Fig. 1, it was concluded that……”. You should note that figure and table captions are written in sentences.

## 2.9 Equations: style Equation

Center the equations by using the centered tab at 8.25 cm (3.25 in). Number them by placing the number at the right hand side of the page in parentheses, as shown in the example below. Treat the equations as part of the sentence surrounding them, as in the example that follows.

“…………In the final stage of the calculation of tonality (*T*), the tonal component (*wT* ) and the noise component (*wGr* ) are combined in the following manner:

 , (10)

where the exponents *β* and *γ* are determined by fitting this model to experimental data. The exponent *β* in Equation (10) was estimated to be 0.39. The derivation of equation (10) can be found in ……..”

 There is a half line (6 points spacing before and after the equation). The style used for equations in this document is “Equation”. Note all variables should be consistent throughout the paper whether in equations, in line in text, in Figures or Tables: same size font, same weight (bold or not), and consistently italicized. In general, scalar variable should be italic, e.g., *T*. Matrix variables are usually bold and not italic, e.g. **B**, unless [.] and {.} are used to denote matrices and vectors, respectively. It should be clear from the notation what type of variable is being referred to.

## 2.10 Running headlines and footers: styles Header and Footer

The settings for the header and footer are: 10 pt, Times New Roman, italic. The bottom of the text in the header starts 1.5 cm from the top of the page. The bottom of the text in the footer is 1.0 cm from the edge of the page (if you are using US Letter paper).

* **On the left** of the **header** put in a short version of the title. See the top of this page for an example for this paper. This should be less than 8 cm (3 in) long.
* **On the right** of the **header** put the last names of the author(s). Separate by commas if multiple authors and don’t put a comma before the “&” that is before the last author’s name. If the author list is too long, put first author name and *et al*. See top of this page for a three author example.
* **On the left** of the **footer** put in “NOISE-CON 20XX, City, State, day-day Month, year”. For example, for NOISE-CON 2020 this would be:

*NOISE-CON 2020, New Orleans, Louisiana, 30 June – July 1, 2020*

and note that this does not have a period (full stop) at the end of it.

The header and footer should not appear on the first page of the document.

# 3 REFERENCE STYLES

Shown below are examples of formatting for different types of references. References should be listed numerically, in the order that they are referred to in the paper. The style for the references in the reference list is “Reference”. There is a 0.5 cm or 0.25in hanging indent for the references, font size is 10 and the reference numbers may be superscripted, if convenient.

## 3.1 Reference formatting for journal articles

1. G. Wesley Blankenship and Rajendra Singh, “New rating indices for gear noise based upon vibro‑acoustic measurements”, *Noise Control Eng. J.* **38(2)**, 81‑92 (1992).
2. F. Holste and W. Neise, “Experimental comparison of standardized sound power measurement procedures for fans”, *J. Sound Vib*. **152**, 1‑26 (1992).
3. T. F. W. Embleton, “Experimental study of noise reduction in centrifugal blowers”, *J. Acoust. Soc. Am.* **35(5)**, 700‑705 (1963).

## 3.2 Reference formatting for books

1. L. L. Beranek, “Criteria for noise and vibration in communities, buildings, and vehicles”, Chap. 17 in *Noise and Vibration Control Engineering‑Principles and Applications,* edited by Leo L. Beranek and Istvan L Ver, Wiley, New York, 1992.
2. B.Widrow and S.D. Steams, *Adaptive Signal Processing,* Prentice‑Hall, Englewood Cliffs, New Jersey, 1985.

## 3.3 Reference formatting for papers in proceedings

1. D. A. Kienholz and K. E. Smith, “Admittance Modeling: Frequency Domain, Physical Coordinate Methods for Multi‑Component Systems”, *Proc. 6th Int. Modal Anal. Conf*, Orlando, Florida, US, (1988) pp. 608‑614.
2. V. Nitsche, “Application of aircraft noise monitoring systems at German airports”, *Proc. INTER‑NOISE 95,* Newport Beach, California, USA, edited by Robert J. Bernhard and J. Stuart Bolton, Noise Control Foundation, Poughkeepsie, New York, (1995), **Vol. 2**, pp. 755‑758.

## 3.4 Reference formatting for standards

1. *Electroacoustics* — *Sound level meters* — *Part 1: Specifications*, International Standard IEC 61672‑1:2002 (International Electrotechnical Commission, Geneva, Switzerland, 2002).
2. *Sound Level Meters,* International Standard IEC 651:1979 (International Electrotechnical Commission, Geneva, Switzerland, 1979).
3. *American National Standard Acoustical Terminology,* American National Standards Institute ANSI S1.1‑1994 (Acoustical Society of America, New York, 1994).

To reference articles in the text bracketed numbers as in the example below:

“…… as described in the International Standard ISO 1996-2:19901. ……. These systems were used at German airports2, but ……….. Widrow and Stearn3 advocate using an adaptive noise cancellation algorithm when……….. Several researchers4,5,6 have also ……… ”

The corresponding references are listed in the Reference section at the end of this paper.

# 4 Naming Your Document AND CONVERTING TO PDF

Your paper should be in a file named by using the following convention: NCXX\_###, where XX is the year of the conference, e.g., 20 (for 2020), and ### is the three digit number that you were given by INCE on receipt of your abstract. You will submit your document as a PDF file on the conference web site (typically: http://www.inceusa.org/noisecon## where ## denotes the year). For the NOISE-CON 2020 conference the site is <http://www.inceusa.org/noisecon20>.

 Submit your papers in Portable Document Format (PDF). The PDF version of your paper should be created by using versions 5.0 or later of Adobe and it is preferable that you use the full program, rather than just the reader. As noted above, the PDF file should have a name in the format NCXX\_###.pdf, where XX is the year, e.g., 20, and ### is the INCE abstract number, which will have three digits, e.g., If your abstract number is 024, then for NOISE-CON 2020 your filename should be NC20\_024.pdf.

## 4.1 Some notes on embedding fonts

One of the most common problems related to conversion of files to PDF format is the failure to embed fonts in the document. If this is not done, the PDF conversion program does its best to select fonts, but the appearance of the PDF file may not be what you want. Using *true type fonts* is also helpful, but sometimes it is symbols in graphs that get changed. The latter problem may be solved by saving your graphs in a different format before inserting them into your paper. You will need to use the HELP in your software to determine how to solve these problems. There are too many variations and sources of the problems to list solutions here.

## 4.2 Inspecting your PDF file

From reading Section 5.A you will gather that it is very important to do a very careful inspection of your PDF file and address the problems found. Common problems are missing or incorrectly converted symbols, especially mathematical symbols, parts of figures missing or of poor print and preview quality, and incomplete legends in figures.

# 5 Submission of Papers and Registration

## 5.1 Submission of papers

Papers should be submitted as a PDF file following the instructions on the conference website.

## 5.2 Copyright and permission to publish

When you submit the paper, you will be asked to click a button to transfer copyright of the paper to the Institute of Noise Control Engineering (INCE). It is therefore very important that you get all the required permissions to publish the paper in the proceedings from the relevant people in your company or organization, and also, if needed, from the sponsor of the work, *before you submit the paper*. These permissions can take a long time to get, so plan ahead so that you don’t miss the paper submission deadline.

## 5.3 Conference registration

If you submit a paper, at least one author of each paper must register. Papers that do not have a corresponding registration will not be included in the conference proceedings. Registration is also done via the conference website.

# 6 ConCluding Comments

Do your best to stick to the page limits (6-10 pages). While we accept *slightly* longer papers, we would prefer not more than 8 pages. There is a page limit partially because this is not a fully reviewed paper, and also because the technical chairs for the conference read through ALL the papers. Note also that there is a maximum PDF file size limit of 5 Megabytes, but it is desirable that your file be smaller than this upper limit. If you have the full version of ADOBE Acrobat (not just the reader) you might explore the “Reduce File Size” Option. Also, you may want to regenerate the figures that are making the file very large using different software/file export/print to file options.

 Your paper must look pleasing to the eye. Please make sure that you have followed the rules and have produced something that looks very professional. Pay particular attention to the readability of text and numbers in figures and tables. Any paper that does not meet our standards in terms of technical content, quality of writing and format *will be rejected*. When there are minor problems, we will work with you to correct these. However, the required editing must to be done in a timely fashion so that the Proceedings CDs can be produced in time for the conference; this process can take several months.

 The material reported in your paper must be the result of work of the authors, and anyone who has made significant contributions should be a co-author. Other people’s contributions, which may be technical or financial must be referenced and/or acknowledged, should those people agree to be acknowledged. You must not include blatant advertisements for companies or their products. The content of the paper must be focused on noise and vibration control or related topics.

# 7 Acknowledgements

This document is based on format instructions developed for previous Institute of Noise Control Engineering NOISE-CON and INTER-NOISE conferences. Many thanks to Nora and George Maling, Raj Singh, Courtney Burroughs, Alan Marsh and Joe Cuschieri for their input.

# 8 REFERENCES

1. *Acoustics‑Description and Measurement of Environmental Noise‑Part 2: Acquisition of Data Pertinent to Land Use,* Interational Standard ISO 1996‑2: 1990 (International Organization for Standardization, Geneva, Switzerland, 1990).
2. V. Nitsche, “Application of aircraft noise monitoring systems at German airports”, *Proc. INTER‑NOISE 95,* edited by Robert J. Bernhard and J. Stuart Bolton, Noise Control Foundation, Poughkeepsie, New York, 1995, **Vol. 2**, pp. 755‑758.
3. B. Widrow and S.D. Steams, *Adaptive Signal Processing,* Prentice‑Hall, Englewood Cliffs, New Jersey, 1985.
4. A. Donut, “Reduction of noise of deep fryers in fast food venues”, *Journal of the Acoustics of Food Production* **10(3)**,77-79, 1981.