

Doc. TSG-550r15
21 September 2006

ATSC Style Guide for Technical Documents

Advanced Television Systems Committee
1750 K Street, N.W.
Suite 1200
Washington, D.C. 20006
www.atsc.org

The Advanced Television Systems Committee, Inc., is an international, non-profit organization developing voluntary standards for digital television. The ATSC member organizations represent the broadcast, broadcast equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries.

Specifically, ATSC is working to coordinate television standards among different communications media focusing on digital television, interactive systems, and broadband multimedia communications. ATSC is also developing digital television implementation strategies and presenting educational seminars on the ATSC standards.

ATSC was formed in 1982 by the member organizations of the Joint Council on InterSociety Coordination (JCIC): the Electronic Industries Association (EIA), the Institute of Electrical and Electronic Engineers (IEEE), the National Association of Broadcasters (NAB), the National Cable Television Association (NCTA), and the Society of Motion Picture and Television Engineers (SMPTE). Currently, there are approximately 160 members representing the broadcast, broadcast equipment, motion picture, consumer electronics, computer, cable, satellite, and semiconductor industries.

ATSC Digital TV Standards include digital high definition television (HDTV), standard definition television (SDTV), data broadcasting, multichannel surround-sound audio, and satellite direct-to-home broadcasting.

Table of Contents

1. INTRODUCTION.....	4
1.1 Definition of Documents	4
2. GENERAL STRUCTURE OF DOCUMENTS.....	4
2.1 Page Layout	5
2.1.1 Image File Formats	7
2.2 Document Creation and Editing	7
3. PERMISSIONS	8
3.1 Citing References	9
3.1.1 Examples	9
3.1.1.1 For a Published Standard	9
3.1.1.2 For a Chapter in a Published Book	9
3.1.1.3 For a Published Book	9
3.1.1.4 For a Magazine Article	10
3.1.1.5 For a Web Reference	10
4. TERMS.....	10
5. DOCUMENT NUMBERING	10
6. EXCEPTION POLICY	10

ATSC Style Guide for Technical Documents

1. INTRODUCTION

This style guide is intended to assist authors and editors of ATSC technical documents in the production of works that will ultimately become ATSC Standards, Recommended Practices, or Informational Documents. The guidelines given here, along with the attached template, are intended to make the process of generating documents easier for all of those involved in the effort. It is understood that not all guidelines are appropriate for all situations. Still, for the sake of consistency across all ATSC documents, this style guide should be followed to the extent possible.

1.1 Definition of Documents

ATSC technical documents take one of the following general forms:

- An **ATSC Standard** is a document that states basic specifications or criteria that are necessary for effective implementation and interoperability of Advanced Television Systems.
- An **ATSC Recommended Practice** is a document that states specifications or criteria within Advanced Television Systems that are not strictly necessary for effective implementation and interoperability, but that are thought to be advisable and may improve the efficiency of implementation or reduce the probability of implementation errors. An ATSC Recommended Practice may specify preferred methodology for implementation and operation and may recommend a choice from among alternatives.
- An **ATSC Informational Document** is a document that incorporates consensus on information regarding ATSC Standards and related industry activities. An Informational Document may be classified as an “Engineering Guide” or a “Technology Group Report” as determined in Section 10.7 of the Bylaws.

The authoritative description of ATSC documents, including modification procedures and types of change documents, can be found in the ATSC document *Procedures for Technology Group and Specialist Group Operation*. This document is available from the ATSC web site at: http://www.atsc.org/policy_documents/ATSC%20Procedures%20B_3%205-11-05.pdf.

2. GENERAL STRUCTURE OF DOCUMENTS

To maintain consistency across ATSC technical documents, the following template should be used in the creation of new documents. Although each type of document, and indeed each subject matter, may require special treatment, the global outline given below should be followed to the extent practical.

- a) **Cover page:** includes title of document, document number, date, and revision history (if appropriate). This is always the first page of the document. See the cover of this document for the preferred layout.
- b) **ATSC page:** includes a description of the ATSC. This is always page 2 of the document. See the second page of this document for the preferred layout and the standard text.
- c) **Table of Contents:** includes first-, second-, and third-level heads (i.e., 1., 1.1, 1.1.1), and other levels as appropriate. See page 3 of this document for the preferred form.
- d) **Section 1. Scope:** includes purpose, organization, and constraints as individual subheads (as needed).
- e) **Section 2. References:** includes normative references, informative references, and other references (as appropriate) as individual subheads. When normative reference are present in a document, the following note should be included prior to the normative reference listing:

“The following documents contain provisions which, through reference in this standard, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All referenced documents are subject to revision, and users of this standard are encouraged to investigate the possibility of applying the most recent edition of the referenced document.”

- f) **Section 3. Definitions and Structures:** includes compliance notation, acronyms and abbreviations, global terms, syntax, and other definitions (as required) as individual subheads.
- g) **Section 4. Overview:** provides an executive summary of the system described by the document.
- h) Other sections and annexes as required.
- i) Running header as follows: ATSC (left) “title of document” (center) date (right), with a medium weight (.5 pt) rule running the column width. See the running header on this document for the preferred form.
- j) Page numbers centered at the bottom of the page.

2.1 Page Layout

The most important contribution of the document authors and editor is their expertise in explaining the concepts, procedures, and constraints of the subject matter. Attention to the details of page formatting, naturally, is of secondary importance. Still, the following guidelines should be considered.

- a) **Fonts.** In any technical document, the fewer fonts, the better. For body text, use a 12 pt. serif face for best readability; *Times New Roman* in either its True Type or Type 1 version is recommended. For headings, tables, and artwork callouts, use a sans serif face; *Arial* (True Type) or *Helvetica* (Type 1) are recommended. *Arial* or *Helvetica* can also be used within the body text to indicate commands and/or code words (9 pt is recommended). For equations and Greek characters, use Symbol (either True Type or Type 1). Two Microsoft Word templates, one for True-Type fonts and one for T1 (Postscript) fonts, are provided that include all of the formatting guidelines discussed in this Style Guide. The one matching your selection of resident fonts should be used for document creation:

For T1 fonts:

http://www.atscmembers.org/sg/T3/Administrative_Documents/ATSC_Technical_Style_T1.dot

For True-Type fonts:

http://www.atscmembers.org/sg/T3/Administrative_Documents/ATSC_Technical_Style_TT.dot

- b) **Font types.** In an ideal world, True Type (historically used on Microsoft Windows systems) and Type 1 (historically used on Apple Mac systems and for nearly all professional publishing) would peacefully coexist. Such is not always the case, however. It is strongly recommended that a document be prepared in either True Type or Type 1 fonts, but not both. Some fonts, most notably Symbol, are available in both True Type and Type 1 forms, and having both on a given computer can lead to printing problems. Resolution of these types of issues is beyond the scope of this style guide, however, authors and editors should be aware of the potential for problems before they begin their project.
- c) **Margins.** Set the page margins for 8.5 by 11 inch paper and allow 1 inch margins on the top, bottom, and sides.

- d) **Justification and indentation.** All body text should be justified with the first line indented. The first paragraph after a subhead, however, should not be indented (as is the case in this document, for example). Bulleted or numbered lists are usually indented and set justified.
- e) **Capitalization and italics.** All headings should be set in “title case,” except first-level heads, which are in all capitals. Within the body text, capitalization (aside from the standard “sentence case”) should be used with caution. Many words are capitalized by authors when there is no need to do so. When a word has a particular special meaning different from the U.S. English meaning, that meaning shall be stated, and the word or phrase Capitalized when used. To call attention to a term or phrase, consider using italics instead.
- f) **Table/figure numbering.** The numbering of tables and figures in the document should follow the section numbers in which the elements appear. For example, the first table in Section 5 of a document would be “Table 5.1.” For tables and figures in an annex, include the annex letter followed sequentially by the number; i.e., Figure A4.1.
- g) **Tables.** Providing specific guidelines for table construction is difficult because of the wide range of information required to be presented in tabular form. Consider the following general guidelines, however. Use a medium weight (0.75 pt) rule around the table, and thin rules (0.25 pt) within the table to define the cells, except for the label row (or column) which should be separated from the contents by a 0.5pt line. Set the cell text left (using a sans serif font, as described previously) and use tabs (or indentation) as necessary to establish a tiered level of importance or to describe a specific structure of data or syntax. Place the table cutline above the table itself. Place the table as close as possible to the body text that refers to it, usually after a paragraph break. Avoid tables that break across pages. For cell text, use 9 pt type; except in the case of semantic element names, which are usually 9 pt bold type (elements that are actually transmitted are bold, those that are not sent are not bold). For heading text, use 9 pt bold type. The following rules should be used with ‘for’ and ‘if’ statements in tables:
- One space after ‘for’, ‘if’, semicolon, and between ‘)’ and ‘{’
 - No space on either side of ‘=’, ‘==’, ‘<’, or ‘>’ except when next to syntax_names or text
 - No space between empty parenthesis; e.g., ‘()’
 - One space between <syntax> and an opening bracket; e.g., ‘dcc_selection_id {’
 - Operators ‘i’, ‘j’, and ‘k’ should be lowercase when used in a table
- h) **Hex numbering.** When a bit field is greater than 16 bits long, a space after the hex characters representing the four sets of four bits in the first 16 bit hex field and after each subsequent set of 16 bits should be used. This will break the presentation to improve readability; e.g., ‘0x4454 4731’. Note that appropriate text should be used to indicate a range of hex values; i.e., ‘0x01’ through ‘0x11’.
- i) **Figures.** As with tables, the range of figures required for a technical document is substantial. Still, consider the following general guidelines. Use a sans serif font (as described previously) and size the illustration to be readable at the size of the printed page (8.5 by 11). For complex diagrams, consider placing the artwork at a 90° angle to provide for a larger finished illustration. Authors and editors are, of course, free to develop their drawings on whatever program they are comfortable with. Still, consider using a professional drawing package, such as Adobe Illustrator, to create drawings. Such programs offer features and time-saving elements not available in more general-purpose applications. Artwork should be embedded in the document. For imported images, EPS, JPG, and TIF files are recommended. PNG files can also be used, but may encounter certain printing issues with some applications. For professional printing, any line art must be scanned at 600 dpi or greater, preferably at the

finished physical size. Black and white photographs should be scanned at 300 dpi or greater, again preferably at the finished size. Scanned black and white images should have a minimum highlight dot of 8 percent and a maximum shadow dot of 90 percent. If art consists of computer-screen captures, use a screen capture application capable of saving screen images at the proper resolution for printing. Place the artwork as close as practical to the text that refers to it, usually after a paragraph break. Place the figure cutline below the artwork with the figure number boldface (i.e., “**Figure 5.1** Descriptive text here.”) Let the artwork float centered (no box rule).

- j) **Software.** To facilitate interchangeability of documents, Microsoft Word is the format of choice for document creation. Final preparation of the document for publication by ATSC will typically be done by staff and output in the latest version of Adobe Acrobat. Standard security will be set by ATSC staff to prevent the published documents from being changed. No other security restrictions are placed on published documents unless so directed by the ATSC President.

2.1.1 Image File Formats

Some elaboration on image formats is appropriate. A *vector file* creates an image as a collection of lines rather than as a pattern of individual pixels (*bit-mapped graphics*). Vector files are much easier to edit than bit-mapped graphics (objects can be individually selected, sized, moved, and otherwise manipulated) and are preferred for professional illustration purposes. Because they are scale- and resolution-independent, vector images can be enlarged without loss of sharpness. Preferred vector file formats are listed below:

- **Adobe Illustrator** (.ai) is well-suited for creating high-quality professional graphics.
- **Adobe Portable Document File** (.pdf) is a file format that allows a document to be transferred to another type of computer system without losing the original formatting or font information.
- **Encapsulated PostScript** (.eps) format is a high-resolution graphic image stored in the PostScript language. The .eps format allows users to transfer high-resolution graphics images between applications. The images can also be sized without sacrificing quality.
- **Microsoft Visio** (.vsd) is well-suited for creating high-quality professional graphics, particularly when those illustrations are embedded in Word files.

PostScript is a *page description language* (PDL) that is capable of describing the entire appearance of a formatted page, including layout, fonts, graphics, and scanned images. Because a PostScript file is device-independent, it can be printed on an imagesetter or any PostScript-compatible printer and will retain the original formatting. It does not provide compression, however, and so files can be quite large.

A *halftone* is a printed reproduction of a photograph (or an illustration other than line art). It uses evenly spaced dots of varying sizes to simulate shades of gray. Dense patterns of larger dots produce dark shades, and less dense patterns of smaller dots create lighter shades.

While the file formats listed above are the preferred types, almost any illustration that conveys the necessary information can be used. To meet the requirements of publication, some illustrations may be reworked or even redrawn. This staff function is addressed on a case-by-case basis prior to final publication of the document.

2.2 Document Creation and Editing

Consistency throughout a document ensures a professional-looking finished product, and more importantly, minimizes the potential for confusion on the part of the reader. Abbreviations,

acronyms, hyphenation, and capitalization should be uniform throughout the document. Headings, numbered and bulleted lists, tables, and reference lists should also be consistent.

Trademarks may be acknowledged in text in one of two ways:

- Include the registered trademark symbol (®) and an asterisk in the text. Add the footnote, “*Registered trademark of company, city, state.”
- Place the registration information in parentheses in the text along with the trademark symbol. Capitalize subsequent mentions of a trademarked name. You do not have to add the registration symbol to subsequent mentions.

Listings in the body text can be numbered, unnumbered, or bulleted. Punctuation should be consistent throughout a listing and follow proper grammar. The first word of each item should be capitalized. If a listing item is not a complete sentence, no punctuation is used. All items within a group should be complete sentences or incomplete sentences.

3. PERMISSIONS

Authors and editors are strongly encouraged to prepare original figures and tables and avoid the use of borrowed material where possible. Submission of original materials eliminates the need to obtain permissions and facilitates revisions if needed. The following items can be copyrighted and their use requires permission:

- A table, diagram, or illustration (line drawing, micrograph, or photo)
- A quote of 50 or more words from a periodical or journal
- A quote or series of shorter quotes totaling 400 words or more from a book

If you are the author of material copyrighted by another party, you must secure permission from that party to use the material in the new document.

The important issue in determining whether permission is needed for an altered figure is the amount of alteration. The change must be substantial if you want to avoid the legal requirement to obtain permissions. What constitutes “substantial” change is a murky legal area. Changing straight lines to arrows, relabeling a figure with letters instead of numbers, or reordering columns in a table does not constitute substantial change and can distort the meaning of the original material. The best approach for avoiding permission issues is to use original materials wherever possible.

It is important to understand, however, that data cannot be copyrighted. Only the format in which it is published can be copyrighted. No permission is needed if data that appear in another text are converted to tabular form. If you are the first author to create a table comparing studies by four other scientists, you do not need permissions, but you should cite the studies as references.

Most printed materials of the U.S., Canadian, and British governments do not require permissions because they are in the public domain and not protected by copyright. However, many government-sponsored agencies copyright their materials and use of such material requires permission. The best approach is to request permission unless you are certain that it is not required.

Permission requests are rarely denied, but they are frequently ignored, despite repeated attempts to secure them. Some follow-up may be necessary. If permission cannot be obtained despite your best efforts, you can:

- Delete the copyrighted material
- Find a substitute for the copyrighted material
- Substantially alter the material so permission is no longer required

A source line attributing material to a copyright holder who grants ATSC permission to use it should be included with the figure, photograph, or other material covered by the permission. ATSC honors copyright holders' requests for special wording.

In all cases, material contained in ATSC documents must conform with the ATSC Policy on Copyright and References, detailed in document B/5. See: http://www.atsc.org/policy_documents/B_5-CopyrightReferencePolicy.pdf.

General guidelines for use of normative references are given in the document "ATSC Approved Document Types for Normative References in ATSC Standards," which can be downloaded from the ATSC Members Web site:

http://www.atscmembers.org/sg/T3/Administrative_Documents/T3_599.pdf

A list of approved normative reference organizations is given in document B/6:

http://www.atsc.org/policy_documents/B_6-NormativeReferenceOrg.pdf

3.1 Citing References

The general form for citing normative and informative references is as follows:

[1] (organization name—or its abbreviation if the name of the standard does not begin with the organization's abbreviation—or author name): (name of document; if a published book use italics, if not use quotation marks), (name of publication and editor/author, if applicable), (publisher), (city), (state), (volume number, if applicable; i.e., vol. 4), (series number, if applicable; i.e., no. 1), (page number or range, if applicable; i.e., pp. 10–20), (date).

For citing a Web site reference:

[1] (organization Web site name): (title of Web page—if given—using quotation marks), (name of author—if given), (URL in the form <http://www.[URL and path as appropriate].extension>), (date).

References are typically numbered in the order in which they appear in the document. It is understood, however, that this practice may not always be practical, especially for documents that have been revised one or more times.

Within the body of the document, it is suggested that the citation use the document name/number followed the appropriate bracketed reference number. For example: "Constraints on the transport stream described in ATSC A/53 [1] shall apply."

3.1.1 Examples

In some cases it may not be possible to capture all of the information specified here for references. Furthermore, certain standards documents will require special treatment. Still, the foregoing serves as a starting point for developing complete and consistent references.

3.1.1.1 For a Published Standard

[1] ATSC: "Digital Audio Compression Standard," Document A/52B, Advanced Television Systems Committee, Washington, D.C., 14 June 2005.

3.1.1.2 For a Chapter in a Published Book

[2] Donald G. Fink: "Video Colorimetry," in *Standard Handbook of Video and Television Engineering*, Jerry C. Whitaker and K. Blair Benson (eds.), McGraw-Hill, New York, N.Y., pp. 889–901, 2000.

3.1.1.3 For a Published Book

[3] Peter Symes: *Video Compression*, McGraw-Hill, New York, N.Y., 1999.

3.1.1.4 For a Magazine Article

[4] Arthur Allison: “Making PSIP Work for You,” *Broadcast Engineering*, Intertec Publishing, Overland Park, KS, vol. 35, no. 2, pp. 34–40, February 2000.

3.1.1.5 For a Web Reference

[5] National Association of Broadcasters: “Number of DTV Stations in Operation,” <<http://www.nab.org/Newsroom/issues/digitaltv/DTVStations.asp>>, March 2006.

4. TERMS

The issue of consistency across ATSC technical documents is important for a variety of reasons, not the least of which is to avoid confusion on the part of the users of our documents. The terms used to describe important concepts, variables, and constraints, therefore, are of critical importance. The ATSC glossary (available from the ATSC Members web site) provides a master listing of all abbreviations and terms used in ATSC Standards documents. To the extent possible, editors and authors of new documents should adopt naming conventions already in use for other ATSC documents. The ATSC glossary can be accessed at:

http://www.atscmembers.org/sg/T3/Administrative_Documents/T3_543.pdf

5. DOCUMENT NUMBERING

The numbering scheme used by a particular specialist group or ad-hoc group may vary; however, consistency is essential to permit efficient document access by contributors. The following basic numbering system is one method:

Sxx-yyyrz-name.ext

Where:

S = ‘S’ for a specialist group document, ‘PC’ for a Planning Committee document, or ‘TSG’ for a Technology and Standards Group document.

xx = the specialist group number; for PC and TSG documents, this field is not used. For SGs below ‘10’ a leading zero is not used.

yyy = is the document number

z = the revision number (numeric), beginning with ‘0’ as the first-release.

name = brief descriptive text (Title Case) of the file using the hyphen character to separate words (no spaces). In the case of agendas and minutes, “name” would be, specifically: “Agenda-yyyy-mm-dd” and “Minutes-yyyy-mm-dd”, respectively.

ext = the document extension (“doc” for Microsoft Word documents, “pdf” for Adobe Acrobat, etc.)

Examples:

S8-001r0-Minutes-2006-01-24.doc

S13-002r1-Agenda-2006-02-28.doc

S3-010r25-DRL-Working-Draft.doc

6. EXCEPTION POLICY

The guidelines given in this document and the detailed formatting specifications contained in the attached Word document template should be used for all ATSC Standards, Recommended Practices, and Informational Documents. It is understood that in some cases it may serve the best

interests of the ATSC to deviate from certain formatting specifications. Such issues should be addressed to the ATSC President for a decision.