



**AIR FORCE RESEARCH LABORATORY (AFRL) AMERICAN  
NATIONAL STANDARDS INSTITUTE (ANSI)/ NATIONAL  
INFORMATION STANDARDS ORGANIZATION (NISO)-BASED GUIDE  
TO FORMATTING TECHNICAL REPORTS**

**February 2018**

**HEADQUARTERS AFRL  
DIRECTOR OF STAFF  
INTEGRATION AND OPERATIONS DIVISION  
INFORMATION MANAGEMENT  
WRIGHT-PATTERSON AFB, OH 45433**

Tailored for the use of AFRL/RD and AFRL/RV contractor and in-house authors.

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## 1.0 COMPONENTS OF A TECHNICAL REPORT

The United States Air Force uses ANSI/NISO Z39.18 as a formatting guide for technical reports. This guidance highlights fundamental formatting recommendations addressed in the ANSI/NISO standard, as shown in Table 1. Full component descriptions are available in the ANSI/NISO Z39.18 which can be found at the link below:

[http://groups.niso.org/apps/group\\_public/download.php/12038/Z39\\_18\\_2005\\_R2010](http://groups.niso.org/apps/group_public/download.php/12038/Z39_18_2005_R2010)

**Table 1. Components of a Technical Report**

COMPONENT	RESPONSIBLE PARTY	INCLUSION STATUS
<b>FRONT MATTER</b> (page numbering sequentially with Roman numerals beginning with Table of Contents)		
Cover or Title	Government Work Unit Manager (WUM)	<i>Required</i>
Notice and Signature Page	Government WUM	<i>Required</i>
Notice to Accompany the Dissemination of Export-Controlled Technical Data (See Appendix B)	<b>Defense Technical information Center (DTIC) will add this to technical report.</b>	
Standard Form (SF) 298, <i>Report Documentation Page</i>	Report Author	<i>Required</i>
Table of Contents	Report Author	<i>Required</i>
List(s) of Figures and Tables	Report Author	Conditional ( <i>include when there are more than five figures and/or tables</i> )
Foreword	Report Author	Optional
Preface	Report Author	Optional
Acknowledgements	Report Author	Optional
<b>BODY</b> (page numbering sequentially beginning with the Arabic numeral 1)		
Summary	Report Author	<i>Required</i>
Introduction	Report Author	<i>Required</i>
Methods, Assumptions, and Procedures	Report Author	<i>Required</i>
Results and Discussion	Report Author	<i>Required</i>
Conclusions	Report Author	<i>Required</i>
Recommendations	Report Author	Conditional ( <i>include when purpose of report is to suggest a course of action</i> )
References	Report Author	Conditional (use if references are provided)
<b>BACK MATTER</b> (page numbering continues sequentially from body of report)		
Appendices	Report Author	Conditional ( <i>Include when needed to supplement Results and Discussion</i> )
Bibliography	Report Author	Conditional
List of Symbols, Abbreviations, and Acronyms	Report Author	Conditional ( <i>include if used in any other component of the report</i> )
Glossary of Terminology	Report Author	Conditional ( <i>Include if report incorporates terms unfamiliar to the intended audience</i> )
Index	Report Author	Optional
Distribution List	Report Author/Government WUM	Conditional ( <i>Some technology directorates control access</i> )
Back Cover	Report Author	Required for classified reports only

## 2.0 FRONT MATTER

### 2.1 Cover Page (see Table 2 and Figure 1) [AFRL/RD and RV contractors see sample on p. 3](#)

- AFRL Shield, upper left-hand corner
- Technical Report Document Number
- Main Title
- Subtitle (if applicable)
- Author Name(s) (First Name/Last Name)
- Wing/Technical Directorate or Prime Contractor Company Name (address can be added. Just be consistent).
- Subcontractor Company Name (if applicable) (address can be added, just be consistent).
- Report Date (Month followed by four-digit year)
- Type of Report (interim or final)
- Distribution Statement and reasons for the statement's assignment (see Department of Defense Instruction (DoDI) 5230.24).
- Warning Statement for Export Control (if applicable)
- Destruction Notice
- Pointer Text to other limits
- Sponsoring Directorate

**Table 2. Cover Page Elements**

Component	Explanation
AFRL Shield	Located in upper left-hand corner.
Technical Report Number	Assigned by the directorate Science & Technical Information (STINFO) Office upon receipt.
Main Title	Accurate and specific to describe the contents of the report.
Subtitle	If applicable; Used for a delivery or task order (DO-TO) or volume title in a series.
Author Name(s)	Full names to include middle initial(s).
Company Name	Primary performing company name.
Report Date	Month and four-digit year.
Special Report Type	i.e., Small Business Innovative Research (SBIR), Small Business Technology Transfer (STTR) Broad Agency Announcement (BAA), etc.
Distribution Statement	Per the contract.
Data Rights Notice	Whenever Proprietary Information appears as a reason in a distribution statement, a description of the type of data rights in the report is provided parenthetically after the reason- Limited Rights Data, SBIR Data Rights, Government Purpose Rights Data Restricted Rights, etc.
Warning	Standard export control warning (if applicable)
Destruction Notice	Standard destruction notice, one for unclassified data and a different one for classified data.
Classification Caveats	For classified documents, derived from and declassification information.
Sponsoring Directorate	Address supplied by your local STINFO Office.

Be consistent with the font size (i.e., Main Title-16 pt/Bold, all caps; Subtitle- 14 pt/bold)

**MAIN TITLE\***

**Subtitle** (if applicable)\*

**Author(s) First name/Last name\***

**Contractor Company Name** (if applicable) \*

**Author(s) First name/Last name**

**Subcontractor Company Name** (if applicable)

**Month/Year**

**Final Report\***

For AFRL/RD and AFRL/RV contractor authors: provide items marked with \*, as well as the contract number, on your cover; AFRL will prepare the final cover during our report compositing phase.

For AFRL/RD and AFRL/RV in-house authors: use the PRS cover templates on the RD/RV STINFO SharePoint page (ask your Division Liaison for assistance).

**THIS IS A SMALL BUSINESS INNOVATION RESEARCH (SBIR) PHASE I REPORT**

\*\*

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*See additional restrictions described on inside pages.*

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711<sup>TH</sup> HUMAN PERFORMANCE WING  
AIRMAN SYSTEMS DIRECTORATE  
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433  
AIR FORCE MATERIEL COMMAND  
UNITED STATES AIR FORCE**

**Figure 1. Sample of a Cover Sheet**

\*\* Restrictive markings as required by your contracting instrument (border not required).

## 2.2 Pages Following Coversheet

- The appropriate Notice Page or Pages (see Appendix A). (This is prepared by AFRL.)
- Standard Form (SF) 298, *Report Document Page* (see Figure 2).
- Typically, three sections follow the SF 298 in this succession: Table of Contents, List of Figures, and List of Tables.

### 2.2.1. SF 298

The accuracy and completeness of the SF 298 are critical to the report so that the document will be more easily retrieved from Defense Technical Information (DTIC) or other databases. The Contractor/Author shall complete Blocks 1 – 5b, 6 – 8, 12 – 15 of SF 298 and submit per Contract Data Requirements List (CDRL) requirements. See Table 3 and Figure 2. Here is the link for SF 298: [https://app\\_gs.gov/prod\\_rdcgwaajp7wr.s3.amazonaws.com/SF%20298.pdf](https://app_gs.gov/prod_rdcgwaajp7wr.s3.amazonaws.com/SF%20298.pdf)

**Table 3. Explanation of SF 298 Components**

Block No./Component	Explanation
1 Report Date	Month/year of the report, typically the month of or following the ending period of the performance month. Ensure this date matches the date on the cover.
2 Report Type	Final or Interim
3 Dates Covered (From-To)	The period during which the technical effort was performed.
4 Title/Subtitle	Should match the cover title/subtitle. Use a distinctive title and subtitle that distinguished the report from others that cover the same general topic, as when more than one report is produced that has the same overall title.
5a – 5b Contract and funding information	Information should be in the contract. If not, the AFRL Program Manager (PM) or STINFO Officer/Liaison will provide.
5c – 5f Contract information	AFRL WUM or STINFO Officer/Liaison will provide.
6. Authors	The author or authors' first and last names (initials are acceptable)
7. Performing Organization Name(s) and Address(es)	The organization(s) or company(ies) that performed the work. Most commonly, the name and address of only the prime contractor appears here.
8. Performing Organization Report Number	The number assigned to the document by the contractor or if in-house-authored, the number assigned to the document (see Block 11 description)
9. Sponsoring/Monitoring Agency (Name(s) and Address(es))	The organization providing technical oversight for the contract. Occasionally, an effort is co-sponsored, such as when an effort is co-funded by multiple government agencies, such as a division within the Defense Advanced Research Projects Agency (DARPA)
10. Sponsoring/Monitoring Agency Acronym(s)	Branch-level AFRL symbol or other controlling Department of Defense (DoD) office (CDO) descriptive acronym.
11. Sponsoring/Monitoring Agency Report Number(s)	The complete AFRL document number assigned by the directorate STINFO. Ex: AFRL-RD-PS-TR-2017-0010
12. Distribution/Availability Statement	See Appendix A.
13. Supplementary Notes	Export control notice; SBIR information; references to previous editions or related volumes; copyright notice; special grant numbers; references to related documents, etc.
14. Abstract	The overall purpose of the research and/or its applications, including major results and conclusions
15. Subject Terms	Terms and key words that make the report accessible, making it appear in search retrieval lists.
16. Security Classification	Blocks 16a, 16b & 16c only: classification of each identified section
17. Limitation of Abstract	Same as report (SAR) (Enter SAR). For Distribution A documents, use Unlimited.
18. Number of Pages	Total number of pages including front matter.
19a. Name of Responsible Person	Controlling DoD PM.
19b. Telephone Number	Controlling DoD PM. (Leave blank for Distribution A documents)

<b>SAMPLE REPORT DOCUMENTATION PAGE*</b>			<i>Form Approved OMB No. 0704-0188</i>		
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. <b>PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</b>					
<b>1. REPORT DATE (DD-MM-YYYY) *</b> 30-10-2016		<b>2. REPORT TYPE *</b> Final Report		<b>3. DATES COVERED (From - To) *</b> 03 March 2015 – 11 December 2017	
<b>4. TITLE AND SUBTITLE *</b>  Comparative Assessment of Torso and Seat Mounted Restraint Systems <b>(Ensure this title matches the cover sheet title exactly)</b>			<b>5a. CONTRACT NUMBER *</b> FA8650-15-D-1111		
			<b>5b. GRANT NUMBER</b>		
			<b>5c. PROGRAM ELEMENT NUMBER</b> 65502F		
<b>6. AUTHOR(S) * all authors must be listed here</b>  First Name(s)/Last Name(s)			<b>5d. PROJECT NUMBER</b> 3005		
			<b>5e. TASK NUMBER</b> 0001		
			<b>5f. WORK UNIT NUMBER</b> H07L		
<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) *</b>  ABC Research 123 Any Street City, State Zip			<b>8. PERFORMING ORGANIZATION REPORT NUMBER * (only if applicable)</b>		
<b>9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b> Air Force Research Laboratory Airman Systems Directorate Wright-Patterson Air Force Base 45433			<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b> AFRL/RHC		
			<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b> AFRL-RH-WP-TR-2017-0011		
<b>12. DISTRIBUTION / AVAILABILITY STATEMENT *</b> DISTRIBUTION STATEMENT B. Distribution authorized to U.S. Government agencies only; Proprietary Information (SBIR Data Rights), Critical Technology and Export Controlled; December 2017. Other requests for this document shall be referred to AFRL/RH, Wright-Patterson Air Force Base, OH 45433.					
<b>13. SUPPLEMENTARY NOTES</b> *SBIR or STTR topic # & title, if applicable					
<b>14. ABSTRACT</b> This report was developed under a SBIR contract for topic ABC.					
<b>15. SUBJECT TERMS *</b> SBIR, restraint systems, seat mounted restraint systems					
<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b> AFRL WUM assigned to WU
<b>a. REPORT *</b> Unclassified	<b>b. ABSTRACT *</b> Unclassified	<b>c. THIS PAGE *</b> Unclassified			<b>19b. TELEPHONE NUMBER (include area code)</b>

Standard Form 298 (Rev. 8-98)  
Prescribed by ANSI Std. Z39.18

**Figure 2. Sample SF 298**

**\*Contractor authors complete only blocks marked with \*.**



## 2.4 Table of Contents

Start pagination of Table of Contents with lower-case Roman numeral “i” as shown in Figure 3. Start listing contents that are in the Front Matter (e.g., List of Figures, List of Tables, Foreword, Preface, the Body of text, then Back Matter). Appendix labels should be in alphabetical order, and page numbers should continue from the previous section. If there is only one Appendix, just call it an Appendix. If a report contains more than five figures or tables, or some combination totaling more than five, a list of figures and/or tables is required. If less than five, it is optional.

### TABLE OF CONTENTS

Section	Page
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List of Tables .....	v
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i

Figure 3. Table of Contents Example (border not required)

## 2.5 List of Figures

Continue pagination with lower-case Roman numerals as shown in Figure 4. List all figures found in text, excluding those that appear in any appendix (list appendix figures at the front of each appendix, if applicable).

<b>LIST OF FIGURES</b>	
	<b>Page</b>
Figure 1	Overall View of Propulsion Vehicle.....19
Figure 2	Motor Configuration.....25
Figure 3	Apparatus Used to Make Nozzle Tubes.....26

**Figure 4. List of Figures Example (border provided for figure simulation only)**

## **2.6 List of Tables**

Continue pagination with lower-case Roman numerals as shown in Figure 5. List all Tables found in text, excluding those that appear in any appendix (list appendix tables at the front of each appendix, if applicable.)

<b>LIST OF TABLES</b>	
	<b>Page</b>
Table 1	Some of the Upper-Stage Propulsion Options.....19
Table 2	Results of Test Firing #1.....25
Table 3	Results of Test Firing #2.....26

**Figure 5. List of Tables Example (border provided for figure simulation only)**

### 3.0 BODY

#### 3.1 Required Headings

Start the body of the text with the **Summary or Executive Summary (1.0)** and begin pagination with Page 1 (Arabic numerals) (see Figure 3).

#### 3.2 References

References should be listed numerically, in the order they appear in the text. The Reference page should be at the end of the report (*not at the end of each section*). For works that are generally referred to throughout the report, without citing specific references from the work, create a Bibliography (in alphabetical order by author's last name, if known, and if not, by title). Personal communications, unpublished speeches, or any other information not available for reference by the reader should not be included in the References – *footnote your citation instead*. References must be available to readers of the report. The examples below are a suggested format.

##### 3.2.1. Papers / Journal Articles / Conference Presentations or Proceedings

Author's last name, then first name, Titles of papers are in quotation marks; Journal names or Conference names are in italics; Volume is bolded; Date follows comma (not within parenthesis); Page numbers (pp.) are last.

*Examples:*

Chidambaram, N., Dash, S., and Kenzakowski, D., "Scalar Variance Transport in the Turbulence Modeling of Propulsive Jets," *Journal of Propulsion and Power*, **17**, 1, Jan 2001, pp. 79-84.

Author(s), "Title of Article," Paper No. (if AIAA or CPIA paper, etc.), *Name of Conference*, Location, Date.

Chai, A.H., Cao, Z.T., Chen, H. P., "Monte Carlo Method Study of Terahertz Pulse, Propagation in Biological Tissue," *Proceedings of the 2005 IEEE, EMBS 27th Annual Conference*, Shanghai, China (2005).

##### 3.2.2. URLs **(A URL only, without the other citation information, is unacceptable.)**

The URL or other path information appears instead of the volume and number cited for a conventional journal. It is frequently useful to the reader to know the date when the material was accessed. In such cases, "Accessed [date]" would be appropriate wording.

Virillio, Paul, "Speed and Information: Cyberspace Alarm!" CTHEORY, URL: <http://www.freedonia.com/ctheory/>, last modified 19 September 1995. Accessed 17 November 1999

##### 3.2.3. Technical Reports

Enter Author's last name, then first; Titles of reports are in italics; Next is report number; DTIC Accession Number, Distribution Code and/or PA Clearance/Date, Name and address of performing agency/organization; Date is last.

*Example:*

Author(s), Title, AFRL-PR-ED-TR-20XX-XXXX, Company, Inc., City, State, Jan 2006

#### In-House Author Example

Gaitonde, Datta, Advances in High-Fidelity Multiphysics Simulation, AFRL-RB-WP-TR-2008-3019; ADB123456, Distribution B, Wright-Patterson AFB: AFRL Air Vehicles Directorate, 2008

Gaitonde, Datta, Advances in High-Fidelity Multiphysics Simulation, AFRL-RB-330 WP-TR-2008-3019, XXABW Cleared XX/XX/XXXX; XXABW-XXXX-331 XXXX, Wright-Patterson AFB: AFRL Air Vehicles Directorate, 2008

#### 3.2.4. Books

Enter Author's last name, then first name; Title of book can be **Bolded** or Underlined; Publisher's name and location (city and state); Date of publication; Page numbers last.

*Example:*

Author(s), **Book Title**, Harper & Rowe, New York, NY, 1993, pp. 36-38, 77, 98-101

Wylie, C.R., **Advanced Engineering Mathematics**, 7th ed, McGraw-Hill, New York, NY, 2005, pp 15-18

## 4.0 BACK MATTER

Pagination continues from the body. Include conditional and optional Back Matter in the order listed in the components table on page 1: Appendices, Bibliography, List of Symbols, Abbreviations, and Acronyms, Glossary, Index, Distribution List, and Back Cover.

### 4.1 Appendices

If there is only one appendix, the title Appendix would be without an alphabet letter (i.e., Appendix A, Appendix B). All tables and figures in that appendix are prefixed with A-, the “A” representing the word, Appendix. Each appendix should be referred to in the body text. Any references cited in an appendix must be listed as the last page of the appendix. Appendix page numbering is a sequential continuation of the Arabic text page numbering. Number figures, tables, equations, and references in an appendix with the letter of the appendix, followed by a hyphen and a sequential number, starting at 1, e.g., Figure A-1, A-2, B-1, B-2 for appendix figures, Table A-1, A-2, B-1, B-2 for appendix tables and A-1, B-1 for reference citations.

### 4.2 Symbols, Abbreviations and Acronyms

When first introduced in the report (title or text), completely write out abbreviations and acronyms, followed by the abbreviation or acronym in parentheses, e.i., Small Business Innovation Research (SBIR). Thereafter, use only the acronym/ abbreviation in the body text; i.e., SBIR only if they are proper names (e.g., Department of Defense). See Figure 6. Create an acronym list that lists and defines all acronyms and symbols that appear in your report. List all terms alphabetically, beginning with those starting with capital letters, followed by lower case (e.g., H<sub>2</sub>, HEDM, hcp). Follow alphabetical entries with Greek or special symbols. Capitalize definitions only if they are proper names (e.g. Department of Defense).

<b>LIST OF SYMBOLS, ABBREVIATIONS AND ACRONYMS</b>	
CAT	Computerized Axial Tomography
COMSAT	Communication Satellites
DMP-128	a Polaroid™ photopolymer
DoD	Department of Defense
Dcg	dichromated gelatin
H <sup>2</sup>	hydrogen
HEDM	High Energy Density Matter
∇	Angle of Attack

**Figure 6. Example of Lists of Symbols, Abbreviations and Acronyms  
(border not required)**

## 5.0 FORMAT REQUIREMENTS.

### 5.1 Type (Font) and Headings (Section Titles)

The recommended font is 12-point Times New Roman or Arial throughout the report. Figure 7 shows an example (format and spacing) of headings:

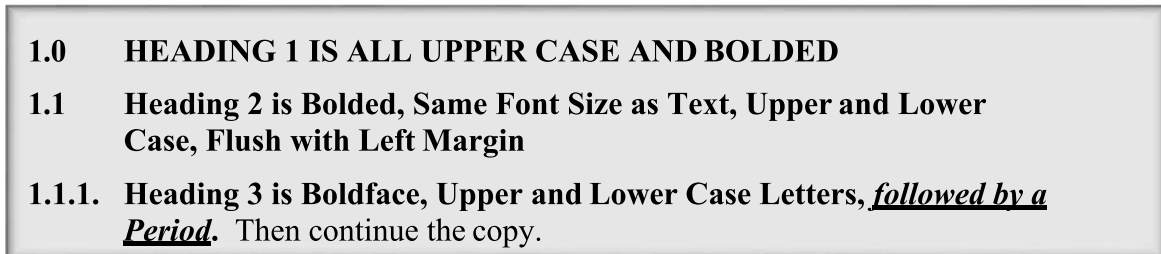


Figure 7. Heading Formats

### 5.2 Spacing

Final reports should be single spaced. It isn't necessary to double-space between paragraphs if the first line of each paragraph is indented.

### 5.3 Margins

Leave 1-inch left, right, and top margins. Leave enough room at the bottom of each page to include page numbers and notices (applicable restrictive statements (i.e., Public Affairs (PA) Clearance, additional control markings, distribution statement, export control warning, etc., as applicable).

### 5.4 Numbering

Page numbers are centered at the bottom of the page, above the footer. Figure numbers and their captions are on the same line below figures, while table numbers and their captions are on the same line above the tables. (See Figure 4 and Figure 5).

## 6.0 PRESENTATION STYLES

### 6.1 Style for Equations, Figures, and Tables

All equations, figures and tables shall be crisp and easy to read as shown in Equation 1. Figure and Table Captions should be in at least an 8-point type (handwriting on figures and tables is not). List of figures and tables are numbered, worded, spelled and punctuated exactly as they are in the report.

#### 6.1.1. Style for Equations

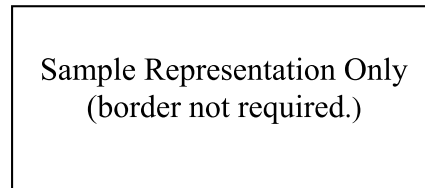
$$(1 + x)^n = 1 + \frac{nx}{1!} + \frac{n(n-1)x^2}{2!} + \dots \quad (1)$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \quad (2)$$

**Equation 1. Sample Equations**

#### 6.1.2. Style for Figure Captions

Figure captions should be in title case letters using a consistent font, as shown in Figure 8 below. The Figure Caption describes the content without giving background information, results, or comments about the figure. Reference to figures and tables must appear in the text before the actual figure or table appears in the report. Where possible, integrate figures and tables into text and place figure/table as soon after the first mention of it as possible, before beginning a new subject. There should be two blank lines between Figures or Tables and text.



**Figure 8. Figure Caption is on Same Line as Figure Number**

#### 6.1.3. Style for Table Captions

Authors should use the style listed in section 4.1.2. As shown in Table 4, the caption line and caption number should be centered, bolded, with no period at the end of the caption.

**Table 4. Table Caption is on Same Line as Table Number**

<b>NAME</b>	<b>ADDRESS</b>	<b>CITY, STATE</b>

## **7.0 BIBLIOGRAPHY**

ANSI/NISO Z39.18-2005 (R2010), Scientific and Technical Reports – Preparation, Presentation and Preservation, 13 May 2010.

[Defense Federal Acquisition Regulation Supplement \(DFARS\) and Procedures, Guidance, and Information \(PGI\).](#)

DoDI 5230.24, *Distribution Statements on Technical Documents*, 01 November 2017.



## **8.0 LIST OF ACRONYMS**

**AFRL** – Air Force Research Laboratory

**ANSI** – American National Standards Institute

**BAA** – Broad Agency Announcement

**CDO** – Controlling DoD Office

**CDRL** – Contract Data Requirements List

**DARPA** – Defense Advanced Research Projects Agency

**DoD** – Department of Defense

**DoDI** – Department of Defense Instruction

**DO-TO** – Delivery – Task Order

**DTIC** – Defense Technical Information Center

**NISO** – National Information Standards Organization

**PA** – Public Affairs

**PM** – Program Manager

**SAR** – Same as Report

**SBIR** – Small Business Innovative Research

**STINFO** – Scientific & Technical Information

**STTR** – Small Business Technology Transfer

**WUM** – Work Unit Manager

**APPENDIX A – Notice and Signature Pages (for AFRL use only; AFRL prepares)**

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**Government Purpose Rights Legend**

Contract Number:  
Contractor Name:  
Contractor Address:  
Location of Government Purpose Rights Data: **[enter pages, sections, figures, etc. (THIS IS A REQUIREMENT)]**  
Expiration of Government Purpose Rights (if applicable):

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Contractor Address:

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**Restricted Rights Legend**

Contract Number:

Contractor Name:

Contractor Address:

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