Checklist for Task Group Chair (Public Release and NU Reports) (V.4)

Have you submitted the following with your report?

- ☐ All required clearance forms (Overall = Form 13-1; Individual Chapters = Form 13-3).
- ☐ Descriptive text for the Front Cover, Title Page and RDP (20 words or less).
- ☐ List of Contributing or Supporting Authors.
- ☐ Executive Summary, in a **separate** MS Word document (maximum length = one page).
- ☐ Abstract (maximum 200 words) and Keywords (maximum 18 words).

Have you checked your report to make sure that …

- ☐ The STO template has been used by the author(s).
- ☐ Chapter titles are 10 words or less.
- ☐ Chapter headings and sub-headings are: 1) numeric; 2) contain the chapter number; and 3) sequentially numbered throughout.
- ☐ Each chapter does NOT exceed 40 pages in length (large chapters can be split = Chapter 1A, 1B, etc.)
- ☐ Figures and tables are numbered by chapter.
- ☐ Figure captions are placed BELOW the figure and table captions are placed ABOVE the table.
- ☐ Figure and table captions are unique and describe the image/date being presented.
- ☐ Equations are numbered by chapter and centred (with the number justified to the right margin).
- ☐ References have been placed at the end of each chapter, cited in the text using square brackets [1].
- ☐ The format used for references is consistent throughout the entire report.
- ☐ There are no errors caused by hyperlinks not working (for figures, tables, equations and references).
- ☐ Annexes are numbered alphabetically and Appendices are numbered numerically.
- ☐ Auxillary information or accompanying data, such as test results or previously published documents, are placed in annexes or appendices.

Checklist for Task Group Chair (NR Reports) (V.3)

Have you submitted the following with your report?

- ☐ All required clearance forms (Overall = Form 13-1; Individual Chapters = Form 13-3).
- ☐ Descriptive text for the Front Cover, Title Page and RDP (20 words or less).
- ☐ List of Contributing or Supporting Authors.
- ☐ Executive Summary, in a **separate** MS Word document (maximum length one page).
- ☐ Abstract (maximum 200 words) and Keywords (maximum 18 words).

Have you checked your report to make sure that …

- ☐ The STO template has been used by the author(s).
- ☐ Chapter titles are 10 words or less.
- ☐ Chapter headings and sub-headings are: 1) numeric; 2) contain the chapter number; and 3) sequentially numbered throughout.
- ☐ Each chapter does NOT exceed 40 pages in length (unless approved by Editor).
- ☐ The content of all text headings and figure/table captions is NATO UNCLASSIFIED.
- ☐ Figures and tables are numbered by chapter.
- ☐ Figure captions are placed BELOW the figure and table captions are placed ABOVE the table.
- ☐ Figure and table captions are unique and describe the image/date being presented
- ☐ Equations are numbered by chapter and centred (with the number justified to the right margin).
- ☐ References have been placed at the end of each chapter, cited in the text using square brackets [1].
- ☐ The format used for references is consistent throughout the entire report.
- ☐ There are no errors caused by hyperlinks not working (for figures, tables, equations and references).
- ☐ Annexes are numbered alphabetically and Appendices are numbered numerically.
- ☐ Auxillary information or accompanying data, such as test results or previously published documents, are placed in annexes or appendices.

Checklist for Task Group Chair (NC and NS Reports) (V.3)

Have you submitted the following with your report?

- ☐ All required clearance forms (Overall = Form 13-1; Individual Chapters = Form 13-3)
- ☐ Descriptive text for the Front Cover, Title Page and RDP (20 words or less).
- ☐ List of Contributing or Supporting Authors.
- ☐ Executive Summary, in a **separate** MS Word document (maximum length one page).
- ☐ Abstract (maximum 200 words) and Keywords (maximum 18 words).

Have you checked your report to make sure that …

- ☐ The STO template has been used by the author(s).
- ☐ Chapter titles are 10 words or less.
- ☐ Chapter headings and sub-headings are: 1) numeric; 2) contain the chapter number; and 3) sequentially numbered throughout.
- ☐ Each chapter does NOT exceed 40 pages in length (unless approved by Editor).
- ☐ The content of all text headings and figure/table captions is NATO UNCLASSIFIED.
- ☐ All paragraphs, figures and tables carry a security marking indicating the classification of the content (indented bullets and alpha/numeric lists do NOT require security markings).
- ☐ All paragraphs are numbered.
- ☐ Figures and tables are numbered by chapter.
- ☐ Figure captions are placed BELOW the figure and table captions are placed ABOVE the table.
- ☐ Figure and table captions are unique and describe the image/date being presented
- ☐ Equations are numbered by chapter and centred (with the number justified to the right margin).
- ☐ References have been placed at the end of each chapter, cited in the text using square brackets [1].
- ☐ The format used for references is consistent throughout the entire report.
- ☐ There are no errors caused by hyperlinks not working (for figures, tables, equations and references).
- ☐ Annexes are numbered alphabetically and Appendices are numbered numerically.
- ☐ Auxillary information or accompanying data, such as test results or previously published documents, are placed in annexes or appendices.

STO Publishing Commandments (V.7)

1) Task Groups **must** consult with the Editor (*Ms. Kelly Edwards*) **prior to** report preparation to discuss report outline and any specific requirements (Email: kelly.edwards@rogers.com).

2) Reports must be:
   - Submitted with the **required** clearances (Overall = Form 13-1; Individual Chapter = Form 13-3).
   - Formatted using the STO Template appropriate for the classification of the report.
   - Submitted with:
     - Executive Summary (max. one page).
     - Abstract (max. 200 words).
     - Keywords (max. 18 words).
     - Descriptive Text for the Front Cover and Title Page (max. 20 words).
     - List of Contributing or Supporting Authors[1] [*where applicable*]

3) Chapters must have:
   - A length that does NOT EXCEED 40 pages (large chapters can be split = Chapter 1A, 1B, etc.).
   - Titles that do NOT EXCEED ten (10) words in length.
   - Headings and sub-headings that are numeric and carry the chapter number.

4) Figures and Tables must:
   - Be numbered by chapter (using a hyphen as a delimiter) and follow their first reference in the text.
   - Have **unique** captions for each figure and table, which that are **placed appropriately**:
     - Figure captions = placed below figure / Table captions = placed above table.

5) Equations must be centred and numbered by chapter (using a hyphen as a delimiter), with the number justified to the right margin.

6) References must be:
   - Placed at the end of each chapter, cited in the text numerically using square brackets [1]. *Note: Parenthetical referencing must NOT be used.*
   - Formatted **consistently** throughout the report.

7) Annexes and Appendices[2] must be numbered correctly – Annexes = alphabetically / Appendices = numerically.

NATO RESTRICTED REPORTS … in addition to the above:

8) Reports must have headings and figures/tables captions that are NATO UNCLASSIFIED.

SEE OVER FOR MORE COMMANDMENTS FOR CLASSIFIED REPORTS.

[1] Membership List will be prepared by the Panel Office.

[2] Where possible, all "auxiliary" information/data related to the report or Task Group activities should be placed in an Annex or Appendix. Examples of auxiliary data include (but are not limited to): Terms of Reference (ToR); Technical Activity Description (TAD); Technical Activity (TAP); and information about RTG meeting. Note: This information/data may or may not be formatted according to STO Publishing Standards – this decision will be made on a case-by-case basis.

NATO CONFIDENTIAL and NATO SECRET REPORTS … in addition to the above:

9) Reports must have headings and figures/tables captions that are NATO UNCLASSIFIED.

10) Paragraphs, figures and tables must carry a security marking indicating the classification of its content. *Note: Headings, content inside figures and tables, and reference data do NOT require security markings*.

11) Paragraphs MUST be numbered sequentially throughout each chapter.

Three formatted chapters providing examples of the requirements noted above are presented on the following pages.

Chapter 3 – EXAMPLE #1 FOR PUBLIC RELEASE

Mr. Marcin KAMINSKI
NATO CSO Publication Manager
FRANCE

3.1 INTRODUCTION

The radar receiver's purpose, working in concert with the radar antenna, is to process a desired echo signal in the presence of noise, electromagnetic interference, or clutter [1]. It must isolate the desired signals, and amplify these signals to a level where target information can be detected and displayed to an operator or be converted to digital form for processing by a digital signal processor and a data processor (Figure 3-1). While not explicitly discussed in detail in this chapter it is worth mentioning several facts concerning the digital signal and data processors. In modern radars digital signal processing normally performs the following functions:

1) Coherent integration;
2) Doppler filtering; and
3) Pulse compression.

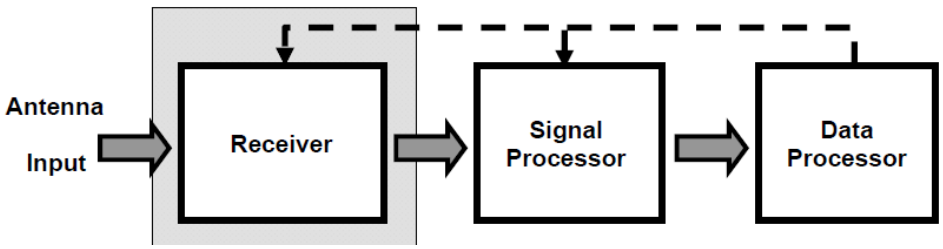

Figure 3-1: Notional Receiver/Processor Hierarchy Diagram.

The automatic data processor which follows the digital signal processor in the signal hierarchy accomplishes:

- Track filtering;
- Establishment of track files; and
- Data association.

3.1.1 Basic Analog Radar Receiver Topology

Most contemporary radars used for defence purposes employ an initial analog type receiver which looks somewhat like that presented in Table 3-1. The antenna converts the incident electromagnetic energy from target returns as well as clutter and interference, e.g., picowatts/area into picowatts, for amplification and processing by the receiver [2]. A duplexer is a component that isolates and protects the receiver during the transmit interval. During the listening period the duplexer allows received power to flow to the Low-Noise Amplifier (LNA). Not shown is a diode limiter that would be installed between the duplexer and LNA that would conduct in the presence of high levels of interference protecting the LNA from damage. The LNA is an amplifier with a very low noise factor. Noise enters the receiver through the antenna terminals in concert with the desired signals, and is also generated within the receiver itself.

Table 3-1: Multiple Beam Klystrons.

Organization	Frequency [GHz]	Peak Output Power [MW]	Gain [dB]	Efficiency [%]	# Beams	Bandwidth [MHz]
NRL	3.26	600	25	40	8	192
Thales	1.30	1020	48	65	7	> 10

$$F_n = \frac{\left(S_{in}/N_{in}\right)}{\left(S_{out}/N_{out}\right)} = \frac{1}{G_n}\frac{N_{out}}{N_{in}} \tag{3-1}$$

$$F = F_1 + \frac{F_2}{G_1} + \frac{F_3}{G_1 G_2} + \ \ldots \tag{3-2}$$

The noise factor is a metric that defines the amount of noise generated by the individual components comprising the receiver. All practical circuits and components have resistance and therefore generate noise. The noise factor of a component, such as an LNA is a measure of the noise produced by a practical component as compared with the noise of an ideal component [3].

3.2 REFERENCES

[1] Gillespie, N., Kirk, K.M., Heath, A.C., Martin, N.G. and Hickie, I., Somatic distress as a distinct psychological dimension, Soc Psychiatry Psychiatr Epidemiol 34:451-8, 1999.

[2] Goldberg, D., A dimensional model for common mental disorders, Br J Psychiatry Suppl 44-9, 1996.

[3] Henningsen, P., Zimmermann, T. and Sattel, H., Medically unexplained physical symptoms, anxiety, and depression: a meta-analytic review, Psychosom Med 65:528-33, 2003.

Chapter 3 – EXAMPLE #2 FOR NATO UNCLASSIFIED (WITH RELEASABILITY IF REQUIRED)

Mr. Marcin KAMINSKI
NATO CSO Publication Manager
FRANCE

3.1 INTRODUCTION

The radar receiver's purpose, working in concert with the radar antenna, is to process a desired echo signal in the presence of noise, electromagnetic interference, or clutter [1]. It must isolate the desired signals, and amplify these signals to a level where target information can be detected and displayed to an operator or be converted to digital form for processing by a digital signal processor and a data processor (Figure 3-1). While not explicitly discussed in detail in this chapter it is worth mentioning several facts concerning the digital signal and data processors. In modern radars digital signal processing normally performs the following functions:

1) Coherent integration;
2) Doppler filtering; and
3) Pulse compression.

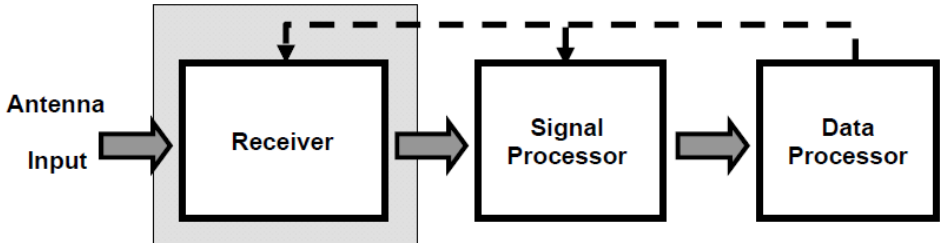

Figure 3-1: Notional Receiver/Processor Hierarchy Diagram.

The automatic data processor which follows the digital signal processor in the signal hierarchy accomplishes:

- Track filtering;
- Establishment of track files; and
- Data association.

3.1.1 Basic Analog Radar Receiver Topology

Most contemporary radars used for defence purposes employ an initial analog type receiver which looks somewhat like that presented in Table 3-1. The antenna converts the incident electromagnetic energy from target returns as well as clutter and interference, e.g., picowatts/area into picowatts, for amplification and processing by the receiver [2]. A duplexer is a component that isolates and protects the receiver during the transmit interval. During the listening period the duplexer allows received power to flow to the Low-Noise Amplifier (LNA). Not shown is a diode limiter that would be installed between the duplexer and LNA that would conduct in the presence of high levels of interference protecting the LNA from damage. The LNA is an amplifier with a very low noise factor. Noise enters the receiver through the antenna terminals in concert with the desired signals, and is also generated within the receiver itself.

Table 3-1: Multiple Beam Klystrons.

Organization	Frequency [GHz]	Peak Output Power [MW]	Gain [dB]	Efficiency [%]	# Beams	Bandwidth [MHz]
NRL	3.26	600	25	40	8	192
Thales	1.30	1020	48	65	7	> 10

$$F_n = \frac{\left(S_{in}/N_{in}\right)}{\left(S_{out}/N_{out}\right)} = \frac{1}{G_n}\frac{N_{out}}{N_{in}} \tag{3-1}$$

$$F = F_1 + \frac{F_2}{G_1} + \frac{F_3}{G_1 G_2} + \ \ldots \tag{3-2}$$

The noise factor is a metric that defines the amount of noise generated by the individual components comprising the receiver. All practical circuits and components have resistance and therefore generate noise. The noise factor of a component, such as an LNA is a measure of the noise produced by a practical component as compared with the noise of an ideal component [3].

3.2 REFERENCES

[1] Gillespie, N., Kirk, K.M., Heath, A.C., Martin, N.G. and Hickie, I., Somatic distress as a distinct psychological dimension, Soc Psychiatry Psychiatr Epidemiol 34:451-8, 1999.

[2] Goldberg, D., A dimensional model for common mental disorders, Br J Psychiatry Suppl 44-9, 1996.

[3] Henningsen, P., Zimmermann, T. and Sattel, H., Medically unexplained physical symptoms, anxiety, and depression: a meta-analytic review, Psychosom Med 65:528-33, 2003.

Chapter 3 – EXAMPLE #3 FOR CLASSIFIED REPORTS – NC AND NS (WITH RELEASABILITY IF REQUIRED)

Mr. Marcin KAMINSKI
NATO CSO Publication Manager
FRANCE

3.1 INTRODUCTION

1. (CM)[3] The radar receiver's purpose, working in concert with the radar antenna, is to process a desired echo signal in the presence of noise, electromagnetic interference, or clutter [1]. It must isolate the desired signals, and amplify these signals to a level where target information can be detected and displayed to an operator or be converted to digital form for processing by a digital signal processor and a data processor (Figure 3-1). While not explicitly discussed in detail in this chapter it is worth mentioning several facts concerning the digital signal and data processors. In modern radars digital signal processing normally performs the following functions:

    1) Coherent integration;

    2) Doppler filtering; and

    3) Pulse compression.

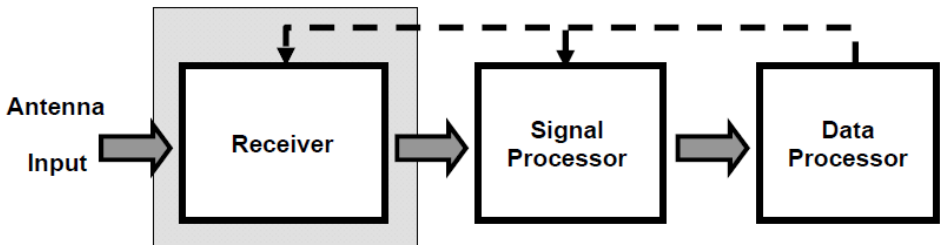

Figure 3-1 (CM): Notional Receiver/Processor Hierarchy Diagram.

2. (CM) The automatic data processor which follows the digital signal processor in the signal hierarchy accomplishes:

    - Track filtering;
    - Establishment of track files; and
    - Data association.

3.1.1 Basic Analog Radar Receiver Topology

3. (CM) Most contemporary radars used for defence purposes employ an initial analog type receiver which looks somewhat like that presented in Table 3-1. The antenna converts the incident electromagnetic energy from target returns as well as clutter and interference, e.g., picowatts/area into picowatts, for amplification and processing by the receiver [2]. A duplexer is a component that isolates and protects the receiver during the transmit interval. During the listening period the duplexer allows received power to flow to the Low-Noise Amplifier (LNA). Not shown is a diode limiter that would be installed between

[3] "CM" = Classification Marking.

the duplexer and LNA that would conduct in the presence of high levels of interference protecting the LNA from damage. The LNA is an amplifier with a very low noise factor. Noise enters the receiver through the antenna terminals in concert with the desired signals, and is also generated within the receiver itself.

Table 3-1 (CM): Multiple Beam Klystrons.

Organization	Frequency [GHz]	Peak Output Power [MW]	Gain [dB]	Efficiency [%]	# Beams	Bandwidth [MHz]
NRL	3.26	600	25	40	8	192
Thales	1.30	1020	48	65	7	> 10

$$F_n = \frac{\left(S_{in}/N_{in}\right)}{\left(S_{out}/N_{out}\right)} = \frac{1}{G_n}\frac{N_{out}}{N_{in}} \tag{3-1}$$

$$F = F_1 + \frac{F_2}{G_1} + \frac{F_3}{G_1 G_2} + \ \ldots \tag{3-2}$$

4. (CM) The noise factor is a metric that defines the amount of noise generated by the individual components comprising the receiver. All practical circuits and components have resistance and therefore generate noise. The noise factor of a component, such as an LNA is a measure of the noise produced by a practical component as compared with the noise of an ideal component [3].

3.2 REFERENCES

[1] Gillespie, N., Kirk, K.M., Heath, A.C., Martin, N.G. and Hickie, I., Somatic distress as a distinct psychological dimension, Soc Psychiatry Psychiatr Epidemiol 34:451-8, 1999.

[2] Goldberg, D., A dimensional model for common mental disorders, Br J Psychiatry Suppl 44-9, 1996.

[3] Henningsen, P., Zimmermann, T. and Sattel, H., Medically unexplained physical symptoms, anxiety, and depression: a meta-analytic review, Psychosom Med 65:528-33, 2003.