

6 May 2013

NSA/0592(2013)AIR/4545

**STANAG 4545 AIR (EDITION 2) – NATO SECONDARY IMAGERY FORMAT (NSIF)**

References:

- a. MAS/451-AIR/4545, dated 27 November 4545
- b. NSA-0997(2011)4545 dated 30 November 2011

1. The enclosed NATO Standardization Agreement, which has been ratified by nations as reflected in the NATO Standardization and Documentation Database (NSDD), is promulgated herewith.
2. The references listed above are to be destroyed in accordance with local document destruction procedures.

ACTION BY NATIONAL STAFFS

3. National staffs are requested to examine their ratification status of the STANAG and, if they have not already done so, advise the NSA, through their national delegation as appropriate of their intention regarding its ratification and implementation.



Dr. Cihangir AKSIT, TUR Civ  
Director, NATO Standardization Agency

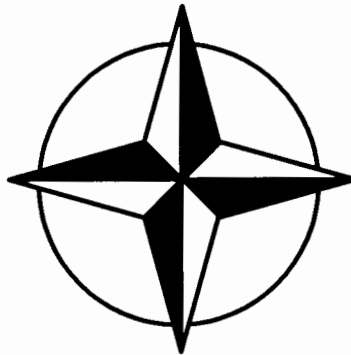
Enclosure:

STANAG 4545 (Edition 2)

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NATO Standardization Agency – Agence OTAN de normalisation  
B-1110 Brussels, Belgium Internet site: <http://nsa.nato.int>  
E-mail: [nsa@nsa.nato.int](mailto:nsa@nsa.nato.int) – Tel 32.2.707.5556 – Fax 32.2.707.5718

NORTH ATLANTIC TREATY ORGANISATION  
(NATO)



NATO STANDARDIZATION AGENCY  
(NSA)

STANDARDIZATION AGREEMENT  
(STANAG)

SUBJECT: NATO SECONDARY IMAGERY FORMAT (NSIF)

Promulgated on 6 May 2013

A handwritten signature in black ink, which appears to read 'Cihangir Aksit'.

Dr. Cihangir AKSIT, TUR Civ  
Director, NATO Standardization Agency

RECORD OF AMENDMENTS

No.	Reference/date of Amendment	Date Entered	Signature

EXPLANATORY NOTES

AGREEMENT

1. This NATO Standardization Agreement (STANAG) is promulgated by the Director NATO Standardization Agency under the authority vested in him by the NATO Standardization Organisation Charter.
2. No departure may be made from the agreement without informing the tasking authority in the form of a reservation. Nations may propose changes at any time to the tasking authority where they will be processed in the same manner as the original agreement.
3. Ratifying nations have agreed that national orders, manuals and instructions implementing this STANAG will include a reference to the STANAG number for purposes of identification.

RATIFICATION, IMPLEMENTATION AND RESERVATIONS

4. Ratification, implementation and reservation details are available on request or through the NSA websites (internet <http://nsa.nato.int>; NATO Secure WAN <http://nsa.hq.nato.int>).

RESTRICTIONS TO REPRODUCTION

5. No part of this publication may be reproduced, stored in a retrieval system, used commercially, adapted, or transmitted in any form or by any means, electronic, mechanical, photo-copying, recording or otherwise, without the prior permission of the publisher. With the exception of commercial sales, this does not apply to member nations and Partnership for Peace countries, or NATO commands and bodies.

FEEDBACK

6. Any comments concerning this publication should be directed to NATO/NSA – Bvd Leopold III - 1110 Brussels - BEL.

NATO STANDARDIZATION AGREEMENT (STANAG)

NATO SECONDARY IMAGERY FORMAT (NSIF)

AIM

1. The aim of this agreement is to promote interoperability for the exchange of Secondary Imagery among North Atlantic Treaty Organisation (NATO) Command Control Communications and Intelligence (C<sup>3</sup>I) Systems. The NATO Secondary Imagery Format (NSIF) is the standard for formatting digital imagery files and imagery-related products and exchanging them among NATO members. The NSIF is part of a collection of related standards and specifications, known as the NATO ISR Interoperability Architecture (NIIA), developed to provide a foundation for interoperability in the dissemination of intelligence-related products among different computer systems.

AGREEMENT

2. This NATO Standardization Agreement (STANAG) is promulgated by the Chairman of the NATO Standardization Agency (NSA) under the authority vested in him by the NATO Military Committee. No departure may be made from the agreement without consultation with the Custodian. Participating nations agree to exchange Secondary Electronic Imagery in accordance with this agreement. Nations may propose changes at any time to the control authority where they will be processed in the same manner as the original agreement. Ratifying nations have agreed that national orders, manuals and instructions implementing this STANAG will include a reference to the STANAG number for purposes of identification.

It is further agreed that the requirements for the format of STANAG 4545 are defined in the NSIF Profile of BIIF (document ISO/IEC BIIF Profile NSIF01.01). Additional requirements for the NATO STANAG 4545 community are defined herein.

Please note that all current and future users that implement this document will use the file version value "01.01" in the FVER field of the file header of the profile. The value "01.01" is the correct value for this field while dealing with NSIF files. The value "01.00" reflects the previous version of the profile, and only applies to certain legacy files. Only the value "01.01" should be used for current or future NSIF files, however, users should be aware that some files may include the value "01.00" and are valid NSIF files. Also note that any NITF file that gets transferred will carry the file version number 02.10, as well as the FHDR value of "NITF".

REFERENCE DOCUMENTS

3. A list of Standardization Agreements (STANAGs), Military Standards (MIL-STDs), International Telecommunications Union (ITU) and Recommendations and International Standards (ISs) that constitute provisions of this STANAG can be found in the ISO/IEC Profile. The Profile is based on the ISO/IEC 12087-5 standard. The NSIF01.01 Profile can be found at the following website:

<http://www.iso.org/jtc1/sc24/register>

4. The register of geospatial extensions used with STANAG 4545 can be accessed at

<http://www.gwg.nga.mil/ntb/baseline/docs/NSIF/STANAG%204545%20NSIF%20TRE%20%20DES%20OCT2012.xlsx>

TRE Details are at: <http://www.gwg.nga.mil/ntb/baseline/docs/stdi0002/index.html>

See also <http://nsa.nato.int/nsa/>

All changes for either the NSIF Profile of BIIF or Edition 2 of STANAG 4545 that have been accepted by the STANAG 4545 Custodial Support Team, can be found in a general Errata Sheet for these documents. Although the CST anticipates that Edition 2 will not have many changes, and that the majority of the changes found in this errata will affect only the NSIF Profile of BIIF, any changes that do affect NSIF Edition 2 will be included. This general Errata Sheet can be found at the NSIF Public Registry, shown at the above website.

#### DEFINITIONS

5. The terms and definitions applicable to this standard can be found in the ISO/IEC Profile. Additional terms for the NATO community are in Annex A.

#### GENERAL SECTION

6. This STANAG is a general reference to the format requirements found in the ISO/IEC NSIF Profile of BIIF. All of the additional STANAG 4545 community requirements can be found in Annex B.

#### DETAILS OF AGREEMENT

7. NSIF is designed to promote interoperability for the exchange of digital electronic imagery among multi-national Command, Control, Communications, and Intelligence (C<sup>3</sup>I) Systems, and those systems needing to interoperate with the C<sup>3</sup>I imagery systems. The NSIF standard alone does not guarantee interoperability. Other aspects of the interface between systems (e.g. recording media, transmission protocols, etc.) must be considered based on other standards. Certifiable implementations of the NSIF for support of interoperability are subject to constraints not specified in this STANAG.

#### IMPLEMENTATION OF THE AGREEMENT

8. This STANAG is implemented by a nation when it has issued instructions that all C<sup>3</sup>I equipment supporting Secondary Imagery procured for its forces will be manufactured in accordance with the characteristics detailed in this agreement.

- Annexes:
- A. NSIF COMMUNITY TERMS AND DEFINITIONS
  - B. NSIF COMMUNITY REQUIREMENTS

**ANNEX A. NSIF COMMUNITY TERMS AND DEFINITIONS**

1. AAP Allied Administrative Publication
2. AEDP Allied Engineering Documentation Publication
3. AP Allied Publication
4. CST Custodian Support Team
5. EU European Union (Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, United Kingdom)  
  
(Note: EU Nations current as of August 2010)
6. EDA European Defense Agency (Same countries as EU with exception of Denmark)
7. ICI Istanbul Cooperative Initiative (Bahrain, Kuwait, Qatar, UAE)
8. ISR Intelligence, Surveillance, Reconnaissance
9. MD Mediterranean Dialogue (Algeria, Egypt, Israel, Jordan, Mauritania, Morocco, Tunisia)
10. NED NATO Effective Date
11. NIIA NATO ISR Interoperability Architecture
12. PfP Partnership for Peace (Armenia, Azerbaijan, Austria, Belarus, Bosnia and Herzegovina, Finland, Georgia, Ireland, Kazakhstan, Kyrgyz Republic, the former Yugoslav Republic of Macedonia<sup>1</sup>, Malta, Moldova, Montenegro, Russia, Serbia, Sweden, Switzerland, Tajikistan, Turkmenistan, Ukraine, Uzbekistan)  
  
(Note: PfP Nations current as of August 2010)
13. TRE Tagged Record Extension(s)

NOTE: Contact Nations include Australia, Japan, Republic of Korea, and New Zealand, (Current as of August 2010)

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<sup>1</sup> Turkey recognizes the Republic of Macedonia with its constitutional name

**ANNEX B. NSIF COMMUNITY REQUIREMENTS**

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## **1. INTRODUCTION**

This Annex is provided to impose further constraints and clarifications on the implementation, use, and application of the BIF format as defined in the NSIF 01.01 Profile. Most changes are subtle wording changes, while others specify different accepted values.

Implementers should take note that in the ISO/IEC Profile, wherever the phrase: “Additional national values can be registered through coordination with the Standardization Agreement 4545 Custodian or respective community registration authority” is seen, it should be interpreted as only referencing the 4545 Custodian and 4545 Custodial Support Team (4545 CST).

Implementers should also note the use of extensions are very common, it should be noted that for STANAG 4545 Edition 2, only extensions that are included in the NSIF Registry are acceptable for use if the file is to remain STANAG 4545 Edition 2 compliant. Any reader that is being designed as a STANAG 4545 Edition 2 reader must be able to skip extensions which it cannot process without causing an error. Any other extension that exists for use with imagery may be used with this standard; however STANAG 4545 Edition 2 compliant readers may not be able to read them.

Any NSIF user may attempt to have a non STANAG 4545 Edition 2 extension registered by submitting the extension to the STANAG 4545 Custodian or the Custodian Support Team.

## **2. RELEASABILITY**

The Releasability and Country Code (RELCCA) TRE is a mandatory readable TRE which provides the ability to extend the releasability fields to include a much broader range of country codes/coding standards and the application of other multinational and coalition release policies to document release of data in a given timeframe and mission. Nations must follow national security policies and utilize RELCCA as best applied.

The terms of application are as follows:

- Files are only to include the RELCCA TRE if the bounds of the xSREL fields are not sufficient to hold all of the Releasability information.
- Any file that needs field space in addition to the xSREL fields must use the RELCCA TRE as additional space.
- If the RELCCA TRE is present within an NSIF file, the TRE data must be passed along to all future users of the NSIF file.
- All end users of NSIF products must be able to read and interpret information that is contained within the RELCCA TRE.



### 3. FILE HEADER CHANGES

Items in Table B-1 are additions or changes to the Name and Value range fields in Table C-1 of Appendix 1 to Annex C, of the NSIF01.01 file header.

<b>Table B-1: NSIF File Header Changes</b>		
<b>Document Location</b>	<b>BIIF Profile Text</b>	<b>Applicable STANAG 4545 Text</b>
Note: The File Header Field (FHDR) has an acceptable Value Range Field value of either NSIF or NITF for the NSIF Edition 2 standard. This is also an acceptable Value Range field value for the NSIF Profile of BIIF.		
Table C-1-1 FVER Field	<i>Value Range Field:</i>  BCS-A For NSIF the values are 01.00 and 01.01, For NITF the value is 02.10	<i>Value Range Field:</i>  BCS-A 01.00, 01.01 (Note that 01.01 is the correct value for files reflecting this edition of the STANAG and the profile 01.01. Some valid legacy files may include the value 01.00 reflecting the previous profile designation.) For NITF the value is 02.10

### 4. IMAGE SUBHEADER CHANGES

As in the file header structure, changes have also been made in the ISO Profile Table C-1-3 on the image subheader as shown below in Table B-2.

<b>Table B-2: Image Subheader changes</b>		
<b>Document Location</b>	<b>BIIF Profile Text</b>	<b>Applicable STANAG 4545 Text</b>
Table C-1-3 TGTID Field	<i>Value Range Field:</i>  BCS-A BBBBBBBBBBBOOOOCC (Default is BCS Spaces (0x20) for all or any sub-part of this field)	<i>Value Range Field:</i>  BCS-A BBBBBBBBBBBOOOOCC (Default is BCS Spaces (0x20) for all or any sub-part of this field – e.g. CC code can be included when there is no BE or O-suffix code available)

## 5. SECURITY CLASSIFICATION SYSTEM CHANGES

The first change deals with the security classification field in each individual table of the profile. The necessary changes can be seen below in Table B-3.

<b>Table B-3: Changes to the Security Classification System Fields</b>		
<b>Document Location</b>	<b>BIIF Profile Text</b>	<b>Applicable STANAG 4545 Text</b>
Table C-1-1, FSCLSY field; Table C-1-3, ISCLSY field; Table C-1-5, SSCLSY field; Table C-1-6, TSCLSY field; Table C-1-8, DESCLSY field; Table C-1-8(A), DESCLSY field; Table C-1-8(B), DESCLSY field; Table C-1-9, RECLSY field	BCS-A BE, CA, DA, FR, GM, GR, IC, IT, LU, NL, NO, PO, SP, TU, UK, US, XN Note: The country codes listed come from FIPS 10-4 except for the value XN. For the purposes of this profile, the value XN is used as the code to designate the NATO security marking system. Note: The listed codes are examples. Applicable codes are based upon the security marking policies of the implementing national or multinational security system. (Default is BCS Spaces (0x20))	U8S (see clause 5) AL, BE, BU, CA, CZ, DA, EN, FR, GM, GR, HU, HR, IC, IT, LG, LH, LO, LU, NL, NO, PL, PO, RO, SI, SP, TU, UK, US, XN XN represents NATO Security System. Above codes are examples. The complete list is maintained on the NSIF Registry. Additional codes may be added by the 4545 CST. (Default is U8S Spaces (0x20))

## 6. FIELDS DESIGNATED TO ALLOW U8S CHARACTERS

The final variance between the NSIF Profile of BIIF and STANAG 4545 Edition 2 is that of the allowed character set designated for some fields. The NSIF Profile of BIIF calls for the use of Basic Latin Characters (BCS-A) in many of the header and subheader fields. For Edition 2, the set of allowed characters is extended to allow the use of U8S (UTF-8 coded Basic Latin and Latin Supplement 1) characters in the header and subheader fields shown below in Table B-4.

<b>Table B-4: Fields Designated to Allow U8S Characters</b>		
Table C-1-1 FTITLE field	Table C-1-1 FSCLSY field	Table C-1-1 FSCODE field
Table C-1-1 FSCTLH field	Table C-1-1 FSREL field	Table C-1-1 FSDCTP field
Table C-1-1 FSDCDT field	Table C-1-1 FSDCXM field	Table C-1-1 FSDGDT field
Table C-1-1 FSCLTX field	Table C-1-1 FSCAUT field	Table C-1-1 FSSRDT field
Table C-1-1 FSCTLN field	Table C-1-1 ONAME field	Table C-1-1 OPHONE field
Table C-1-3 IID2 field	Table C-1-3 ISCLSY field	Table C-1-3 ISCODE field
Table C-1-3 ISCTLH field	Table C-1-3 ISREL field	Table C-1-3 ISDCTP field
Table C-1-3 ISDCDT field	Table C-1-3 ISDCXM field	Table C-1-3 ISDGDT field
Table C-1-3 ISCLTX field	Table C-1-3 ISCAUT field	Table C-1-3 ISSRDT field
Table C-1-3 ISCTLN field	Table C-1-3 ISORCE field	Table C-1-3 ICOMn Field
Table C-1-5 SNAME field	Table C-1-5 SSCLSY field	Table C-1-5 SSCODE field
Table C-1-5 SSCTLH field	Table C-1-5 SSREL field	Table C-1-5 SSDCTP field
Table C-1-5 SSDCDT field	Table C-1-5 SSDCXM field	Table C-1-5 SSDGDT field
Table C-1-5 SSCLTX field	Table C-1-5 SSCAUT field	Table C-1-5 SSSRDT field
Table C-1-5 SSCTLN field		
Table C-1-6 TXTITL field	Table C-1-6 TSCLSY field	Table C-1-6 TSCODE field
Table C-1-6 TSCTLH field	Table C-1-6 TSREL field	Table C-1-6 TSDCTP field
Table C-1-6 TSDCDT field	Table C-1-6 TSDCXM field	Table C-1-6 TSDGDT field
Table C-1-6 TSCLTX field	Table C-1-6 TSCAUT field	Table C-1-6 TSSRDT field
Table C-1-6 TSCTLN field		
Table C-1-8 DESCLSY field	Table C-1-8 DESCODE field	Table C-1-8 DESCTLH field
Table C-1-8 DESREL field	Table C-1-8 DESDCTP field	Table C-1-8 DESDCDT field
Table C-1-8 DESDCXM field	Table C-1-8 DESDGDT field	Table C-1-8 DESCLTX field
Table C-1-8 DESCAUT field	Table C-1-8 DESSRDT field	Table C-1-8 DESCTLN field

## **7. NSIF PROFILE OF BIIF ERRATA CHANGES**

The purpose of this section is to identify the connection between Edition 2 of STANAG 4545, the ISO/IEC Standard 12087-5 – Basic Imagery Interchange Format, and the NSIF Profile of ISO BIIF. This document, Edition 2 of STANAG 4545, is not intended to require any changes. However, as with any other major agreement, there could potentially be changes presented to the NSIF Custodial Support Team and approved by the CST for either this document or the Profile of BIIF; it is the responsibility of the CST to disseminate these changes to the user community so that implementations of STANAG 4545 can sustain interoperability.

As a result, an errata sheet has been created that will track any changes for the the NSIF Profile or NSIF Edition 2, which can be found on the NSIF registry. This errata sheet includes all currently approved changes to the documents, and will continue to be updated to reflect all new changes to the documents. Users of STANAG 4545 should consult this document to obtain the latest update information.