STANDARDS RELATED DOCUMENT

AEDP-7085.1

INTEROPERABLE DATA LINKS FOR ISR SYSTEMS – IMPLEMENTATION GUIDANCE

Edition A Version 2

OCTOBER 2022

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED ENGINEERING DOCUMENTATION PUBLICATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

26 October 2022

1.   The enclosed Standards Related Document, AEDP-7085.1, Edition A, Version 1, INTEROPERABLE DATA LINKS FOR ISR SYSTEMS - IMPLEMENTATION GUIDANCE, which has been approved in conjunction with [AEDP-7085] by the nations in the NATO AIR FORCE ARMAMENTS GROUP, is promulgated herewith.

2.   AEDP-7085.1, Edition A, Version 2 is effective upon receipt and supersedes AEDP-7085.1, Edition A, Version 1 which shall be destroyed in accordance with the local procedure for the destruction of documents.

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4.   This publication shall be handled in accordance with C-M(2002)60.

Rob TRABUCCHI FOR:
Deputy Director
NATO Standardization Office

Dimitrios SIGOULAKIS
Major General, GRC (A)
Director, NATO Standardization Office

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FOREWORD

This document provides the North Atlantic Treaty Organization (NATO) Intelligence, Surveillance, and Reconnaissance (ISR) community with technical guidance on developing and testing implementations of AEDP-7085, Interoperable Data Links for ISR Systems. The correlation between this document, AEDP-7085, and other documents related to AEDP-7085 is provided in the table shown below.

		Edition / Version / Amendment / Change		
COVERING DOCUMENT		STANAG 7085 Ed. 3 (Oct 2011)	STANAG 7085 Ed. 3 Amdt 1 (Mar 2014)	STANAG 7085 Ed.3 Amdt. 2 (Jun 2015)	STANAG 7085 Ed. 4
STANDARD					AEDP 7085, Ed. A, Ver 1 (April 2018)
STANDARDS RELATED DOCUMENTS	Implementation guide	AEDP 10 Ed. A version 1 (Dec 2012)			AEDP 7085.1, Ed A, Ver 1 April 2018
	Security Classification and/or Marking Guide				
	Certification test plan for Impl. 1			Jun-2014	
	Certification test plan for Impl. 2			Dec 2016	

AEDP-7085 is one of a family of standards that are assembled under the NATO Joint Capability Group on Intelligence, Surveillance and Reconnaissance (JCGISR), to ensure the exchange of multi-national intelligence and reconnaissance information. Forward all comments, recommendations, additions, deletions, and other pertinent data that may be of use in improving this document to the Custodian of STANAG 7085 Mr Milton Prell, US Navy Rep – Joint CDL EA [email: Milton.j.prell.civ@us.navy.mil].

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CHAPTER 1	INTRODUCTION

1.1. AUTHORITY

AEDP-7085 and AEDP-7085.1 are produced under the auspices of the North Atlantic Council (NAC), which has delegated its responsibility through the Conference of National Armaments Directors (CNAD) and NATO Air Force Armaments Group (NAFAG) to the Joint Capability Group on Intelligence Surveillance and Reconnaissance (JCGISR). JCGISR has appointed the STANAG 7085 Custodian to serve as its focal point for all matters related to STANAG 7085 including development of and configuration management of AEDP-7085 and associated documents, and the development of and oversight of AEDP-7085 test, evaluation and certification policies and procedures.

1.2. OBJECTIVE

The objective of AEDP-7085 is to enable the interoperation of data link terminals in support of NATO intelligence, surveillance, and reconnaissance (ISR) data processing/exploitation stations and collection platforms. The objective of AEDP-7085.1 is to complement AEDP-7085 by providing guidance on configuration management, certification testing and evaluation, and data link design considerations.

1.3. PHILOSOPHY

1.   AEDP-7085 provides multiple data link implementations to satisfy different ISR platform requirements. Specific variants of each implementation are defined by profiles with each profile identifying a unique combination of specific characteristics such as data rate and signal processing. AEDP-7085 does not impose detailed design requirements. It lists characteristics at certain interfaces between layers which must be specified to achieve interoperability of ISR data links. These characteristics include transmission characteristics, management activities and protocols, and organization of the data flows. Procedures that can be accommodated entirely within a single terminal such as receiver acquisition methods and antenna alignment are not defined in AEDP-7085.

2.   To provide end-to-end interoperability, AEDP-7085 must be used in conjunction with NIIA format standards and other standards which describe the interfaces between the data link and sensors/formatting suites and ISR data processing/exploitation suites.

3.   Compliance with AEDP-7085 is determined by testing against the requirements in the implementation descriptions located in the Chapters 3 and 4 of

AEDP-7085 and in one or more of the individual profile descriptions documented in Chapter 5.

4.   Terminals that have demonstrated compliance with one or more profiles are listed in the registry of AEDP-7085 compliant terminals.

1.4.   QUALITY ASSURANCE POLICY

The quality assurance policy enables the Custodian to ensure the AEDP-7085 documentation and procedures achieve their objectives: to foster interoperability between ISR data link terminals of NATO nations. The quality assurance measures include:

a.   Maintaining clear, unambiguous, waveform specifications for each implementation

b.   Maintaining unambiguous, physically realizable profiles

c.   Continuously improving documentation and processes by periodic reviews by a multinational and multivendor support team

d.   Conducting AEDP-7085 testing for certification only by accredited, independent test organizations

e.   Periodically verifying test organizations, including accreditation, equipment calibration, comments of test sponsors.

f.   Periodically reviewing registry listings to assure currency and accuracy

g.   Continuously soliciting feedback from users of fielded AEDP-7085 terminals.

CHAPTER 2	SECURITY CLASSIFICATION AND/OR MARKING GUIDE

2.1. GENERAL INSTRUCTIONS

1. This Security Classification and/or Marking Guide (SCMG) defines the minimum classification level of capabilities, performance, parameters, and related information of AEDP-7085 systems and documents. This guide must be followed in specifying, designing, developing, producing, testing, operating, and maintaining equipment, documents, and other material related to such systems. Where specific national platform/program security requires a higher classification, that guidance shall be followed.

2. Sections 2.2 through 2.6 list the NATO classification of parameters and capabilities of AEDP-7085-related documents and systems

2.2. OVERALL EFFORT

	TOPIC	CLASSIFICATION
1	Goal, Mission, Purpose	NU The fact that AEDP-7085 is a NATO standard to provide interoperable data links for ISR systems is NU
	a. NATO interoperability	Details may be classified per NATO source information. Otherwise, NU
2	AEDP-7085 End Item	-
	a. General system characteristics	NU – Including a list of the profile identifiers of the profiles for which a terminal has been certified.
	b. Profile designators and generic descriptions	NU – High level profile descriptions: profile designator, simplex or duplex, waveform and mode, (acquisition, active, fallback, variable/fixed) data rate, clear or encrypted, internal or external link management.
	c. Specific system characteristics (e.g. profile performance)	NR – See paragraph 2.3. – Performance & Capabilities
	d. Signal characteristics	NR – See paragraph 2.3. – Performance & Capabilities
	e. End item hardware	NU – See paragraph 2.5. – Hardware
	f. General list of potential improvement areas	NU – Details classified per paragraph 2.3. – Performance & Capabilities
	g. Operational Scenarios	Classified IAW specific program/platform SCMG and/or associated mission
	h. Operational deployments	Classified IAW specific program/platform SCMG and/or associated mission.

2.3. PERFORMANCE & CAPABILITIES

	TOPIC	CLASSIFICATION
1	System Function/Performance Characteristics:	
	a. Case descriptions for AEDP-7085 Cases A, B, and C	NU
	b. Data rates	NU
	c. Data formats, data framing, multiplexing, processing	NR
	d. Detailed information about the multiplexer frame sufficient to identify individual channels within the frame.	NR
	e. Allocation of data bandwidth to specific functions, links, or active link members	NR
	f. Forward error correction and interleaving	NU
	g. Modulation	NU
	h. Frequency band of operation	NU
	i. Frequency channels available	NU
	j. Signal bandwidth	
	(1) Signal bandwidth for Jam Resistant (JR)/Low Probability of Intercept (LPI) links employing spread-spectrum	NR
	(2) Signal bandwidth for links not employing spread spectrum techniques.	NU
	k. Ability to dynamically change profile or variable parameters	NU
	l. Transmitted power level	NU unless otherwise classified by the specific platform/program SCMG.
	m. BER Threshold	NU
	n. Receive sensitivity	NU unless otherwise classified by the specific platform/program SCMG.
	o. System acquisition/reacquisition protocol and/or associated timelines	NR unless classified higher by the specific platform/program SCMG or if information exposes system vulnerability as addressed in paragraph 2.4
	(1). Acquisition/reacquisition time	For Implementation 2, NATO-SECRET. For Implementation 1, may be classified by the specific platform/program SCMG. Otherwise NR

	TOPIC	CLASSIFICATION
	p. Techniques used to achieve JR/LPI capability (e.g. variable transmitter power control, spread spectrum, etc.)	NU
	(1). Detailed description and /or associated performance of JR/LPI techniques including specific details regarding PN codes (e.g. code length, number of available codes, code generation details, etc.)	NS
	(2). PN chipping rate	NR
	q. Tracking/ranging accuracy	Generic capabilities supported by AEDP-7085 waveforms are unclassified. Specific implementation performance may be classified by platform/program SCMG
	r. External sensor/equipment interfaces	NU unless otherwise classified by specific platform/program SCMG
	s. Mission configuration	NR or higher. - Specific electronic configuration for an operational mission is classified IAW program or platform SCMG (e.g. forward/return link frequency channel assignment, PN code, JR/LPI adaptive power control settings, user bandwidth allocation, user IP address, etc.)
	t. System lifetime, mean time between failure, mean time to repair	NU
2	System analysis or simulation	Classified in accordance with topic 1 above.

2.4. VULNERABILITIES & WEAKNESSES

	TOPIC	CLASSIFICATION
1.	Vulnerability to EPM	NS
2.	EPM design features which lead to or reveal operational limitations	NS
3.	Evaluations of system performance against specific threat scenarios, or results of vulnerability assessments that reveal limitations and corrective action taken to reduce vulnerabilities	NS
4.	System operational control procedures which reveal operational weaknesses or limitations	NS
6.	Limitations which have a major impact on the operational use of the system	NS
7.	Details of usage during operational exercises and measures taken to mitigate reconnaissance threats	NS

2.5.   HARDWARE

	TOPIC	CLASSIFICATION
1	AEDP-7085 terminal equipment with neither NATO cryptographic capability nor spread spectrum capability	NU
2	AEDP-7085 terminal equipment with spread spectrum capability	Terminals containing no PN codes or in which PN codes are protected against unauthorized access are NU
4	AEDP-7085 terminal equipment with NATO cryptographic capability (unkeyed)	NU unless otherwise classified by the cryptographic capability SCMG
5	AEDP-7085 terminal equipment containing NATO cryptographic keying material	While keyed the AEDP-7085 terminal is classified as NR
6	Reference to the type of cryptographic capability used in AEDP-7085 terminal equipment	NU unless otherwise classified by the cryptographic capability SCMG
7	Specific details regarding cryptographic capability, characteristics, and/or interfaces.	NR unless classified higher by the cryptographic capability SCMG

2.6. TEST, EVALUATION AND CERTIFICATION

	TOPIC	CLASSIFICATION
1.	General test philosophy and objective	NU
2.	Specific test objectives	NU
3.	Test data that reveals requirements of the underlying standard	Classified at the level of any classified requirement data reveals.
4.	Laboratory test plans, schedules, and locations	NU for all forms of testing with the exception of flight-testing or open radiation types of testing.
5.	Test facility configuration	NU except for adversary (jammer) test configuration and equipment performance
6.	Test data, test reports analyses and conclusions which reveal system performance characteristics, operational limitations, weaknesses or vulnerabilities of the system	Generally NR, but may be classified higher by specific platform/program or exercise SCMG
7.	Flight/field test/demonstration plans, schedules, locations	Generally NU, but may be classified by specific platform/program or exercise SCMG

CHAPTER 3   PROGRAMME MANAGERS' GUIDE TO AEDP-7085

3.1.   INTRODUCTION

3.1.1. Aim

1.   This guide is designed to familiarise Programme Managers (PM) and assist them in implementing 'NATO Standardisation Agreement 7085: NATO Interoperable Data Links for ISR Systems' (STANAG 7085).

2.   The information provided will help PMs evaluate whether a STANAG 7085 data link might be useful for their system requirement. It gives an indication of the scope of the work necessary to implement the data link system and advises the optimum desired performance characteristics required for the application by considering parameter trade-offs.

3.   This document chapter contains the following sections:

   a.   Introduction – An overview of the subject

   b.   Key Considerations – Interfaces, spectrum allocation, AEDP-7085 editions, profiles and compliance

   c.   Other Considerations – Spectrum limitations, AEDP-7085 implementations, profile characteristics and performance, link management, link budget, emerging technology, security and robustness

   d.   Factors to Consider in Selecting a Data Link

   e.   Frequently Asked Questions

   f.   Example Link Budget Calculations

3.1.2. Point of Contact

The STANAG 7085 Custodian is Mr. Milton Prell, US Navy Rep – Joint CDL EA [email: Milton.j.prell.civ@us.navy.mil].

3.1.3. Overview of AEDP-7085

1.   AEDP-7085 is designed to enable Near Real-Time (NRT) transmission of data with high throughput, typically Intelligence, Surveillance and Reconnaissance (ISR) information collected by on- board sensors in ISR collection platforms to front line

users at data processing / exploitation stations. It is key to enhancing situational awareness to support operations.

2.   The provision of NRT information by data links is expected to increase, driven by a requirement for Network Enabled Capability (NEC) in all areas of the battle space. As a result, there will be incentives to implement AEDP-7085 data link capability in most of the new airborne ISR assets and their relative surface components and to retrofit legacy airborne ISR assets with AEDP-7085 data links.

3.   Transmission of ISR information, particularly via Full Motion Video (FMV), requires much larger data link capacity than is available through most Radio Frequency (RF) data links. Therefore specifically designed radios are usually used to transmit this traffic. High capacity data links are often characterised as 'wideband'.

4.   AEDP-7085 is a wideband data link that that can support point-to-point and broadcast communications in both simplex and duplex configurations. AEDP-7085 does not specify the information that is to be transmitted over the data link but typical applications involve transmitting EO/IR imagery, Synthetic Aperture Radar (SAR), still imagery and intelligence products.

5.   AEDP-7085 tries to cater for a wide range of operational scenarios by providing a range of specific implementations, called profiles, which can be selected to support a given requirement. Each profile details specific AEDP-7085 configurations and can be implemented by the operational community to achieve system interoperability. Project teams will have to select and implement profiles that match their operational requirement.

6.   Systems are tested against the profiles they elect to implement in order to verify AEDP-7085 compliance.

3.1.4. AEDP-7085 Scope

1.   AEDP-7085 defines the waveforms of the Line Of Sight (LOS) broadband data link dedicated to ISR collection platforms. Its main concern is the interoperability between collection platform and data processing / exploitation station, so it focuses on the Over-The-Air (OTA) interface.

2.   The waveform supports transmission of wideband user data, including sensor data, but AEDP-7085 does not specify the information that is to be transmitted over the data link. AEDP-7085 links are also used to control sensors, configure missions, control collection vehicles, and report status.

3.1.5. AEDP-7085 Implementations

1.   AEDP-7085 currently incorporates 2 Implementations

Implementation 1	Based on the US Standard CDL (Common Data Link) waveform standard (CDL Rev F1)
Implementation 2	Based on the FR DSDL (DVB-S based Data Link) waveform standard

2.　　These two implementations share the same data rates and many other characteristics. However, AEDP-7085 Implementations 1 and 2 do not interoperate with each other.　Fundamentally, the reason for this is twofold:

    a.　　The waveforms of the two implementations differ significantly.

    b.　　Use of different data channelization structures, i.e. the presence of ISR, auxiliary [1] and reserved [2] data traffic.

3.　　In Implementation 1, one or more IP channels are provided to carry the sensor data. In addition, narrower channels are provided to pass auxiliary data such as aircraft coordinates, voice traffic, link management commands and responses. These channels are combined in a defined way by a multiplexer inside the data terminal, specified by AEDP-7085. At the receiver, a demultiplexer separates the wide and narrow channels and passes them over separate interfaces to the receiving aircraft or station.

4.　　Implementation 2 carries a single channel; there are no dedicated channels for the auxiliary information. Instead, this information can be framed by the host computer, or external switch / router and combined with the sensor data, for example, in an Ethernet or IP stream. This makes for a somewhat generic terminal design.

5.　　The PM therefore has a choice: Implementation 1, Implementation 2, or a dual-implementation terminal. The deciding factor is usually - which implementation(s) do my communication partners use?

3.1.6. End-to-End Interoperability

1.　　End-to-End Interoperability regarding sensor data transmission between a collection platform and a processing station requires consideration of not only the AEDP-7085 data link, but also the standards used at the application layer (STANAG 4609, STANAG 7023, STANAG 4586 …), and, if needed, other functions (authentication, prioritization...) external to the AEDP-7085 data link.

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[1]Auxiliary data is defined as all other data required for the processing of a product which is not part of the primary measurement data received from the instrument while in the nominal measurement mode.
[2]　Reserved data is defined as a portion of the data link capacity reserved within a data link implementation for specific purposes, such as Audio, Executive Function Commands and Navigation.

2.   The following STANAGs can be associated to AEDP-7085 data link:

Standard	Purpose
STANAG 4660	Defines a narrowband, line-of-sight data link standard for command and control of one or more unmanned platforms
STANAG 4586	Defines message sets to control unmanned platforms
STANAG 4607	Defines standard formats for moving-target indicator data
STANAG 4609	Defines format standards for streaming motion imagery
STANAG 7023	Defines imagery format standards

(This list is not exhaustive)

3.   Each STANAG has a named custodian, who is responsible for maintaining and updating the standard. Each has a Custodial Support Team – a group of representatives from nations (sometimes including equipment vendors) who meet periodically to improve the standard or change it to match emerging capability needs.

3.2.   KEY CONSIDERATIONS

3.2.1. Interfaces

1.   AEDP-7085 deals with waveform interoperability between ISR collection terminals and data processing /exploitation terminals. AEDP-7085 does not impose detailed design requirements to address interchangeability between terminals from different vendors. It does not define interfaces between an AEDP-7085 terminal and:

        a.   Antenna

        b.   Power amplifier

        c.   External crypto device

        d.   Key loader

        e.   External router or switch

        f.   Mission computer

        g.   Sensors

2.   Physical interface standards for ISR data links are left to the discretion of the PM i.e. AEDP-7085 does not specify them. Most terminals use standard Ethernet for the user data interface. When using Ethernet to carry user data traffic, the two terminals create a link that behaves like a standard Ethernet cable, minimizing impact to the system network architecture.

3.2.2. Surface Stations

1.   AEDP-7085 data links are often used to communicate between a collection platform, commonly airborne, and a data processing /exploitation station which is commonly surface based and which can be either static or mobile. The role of the surface station is to receive ISR data from the airborne platform and process the data as required to accomplish its mission. In addition, the surface station exchanges link management messages with the data link terminals at both ends of the data link. These link management messages enable the surface station to control data link parameters such as carrier frequencies, profiles, spreading codes and crypto keys. Link management messages destined for the collection terminal may be sent via reserved channels on the data link (Internal Management) or via External Management.

2.   Furthermore, in the case of Implementation 1, a mobile data processing /exploitation station may provide the collection terminal with its location in real time which may be required to enable the collection platform to orientate its antenna to optimise link performance.

3.2.3. Radio Frequency (RF) Spectrum Allocation

1.   AEDP-7085 data links are authorised by the NATO Joint Civil / Military Frequency Agreement (NJFA) for fixed, mobile services to operate within the Ku frequency band allocation; 14.62 GHz to 15.23 GHz. National technical authorities must be consulted for all frequency band allocations.

2.   Communication that is directed from the sensor to the exploitation equipment (downlink) is carried by the Return Link (RL).

3.   Commands and associated data directed towards the sensor and sensor platform (uplink) is carried by the Forward Link (FL). AEDP-7085 equipment may often use only a RL (simplex operation), although it has a full duplex capability (simultaneous use of both FL and RL).

4.   For full duplex operations, the authorised band is subdivided as follows:

      a.   RL operates in the band 14.62 – 14.83 GHz

      b.   FL operates in the band 15.15 – 15.23 GHz

      c.   RL and FL are separated by a 320 MHz wide guard band.

5.   Simplex operations (RL only) may use carrier frequencies anywhere in the authorized frequency band (14.62 – 15.23 GHz) including portions of the band reserved for the guard band and forward links.

6.   AEDP-7085 compliant systems shall not be required, but are permitted, to provide frequency selections that would result in operation outside of the NATO allocation. However, RF spectrum is a limited resource and the national technical authorities for RF spectrum allocation must be consulted to request operation in another frequency band.

3.2.4. AEDP-7085 Profiles

1.   AEDP-7085 provides multiple profiles to satisfy different ISR platform requirements. A profile identifies a unique combination of waveform characteristics such as encryption employed (if any), uplink and downlink data rates, occupied bandwidth and method of data link management, which together define link performance.

2.   The principle of interoperability within AEDP-7085 is based on the use of the same profile at both ends of the data link. The challenge for the PM is to choose which profiles to implement that meet both performance and interoperability requirements. All AEDP-7085 terminals have the capability to embed multiple profiles.

3.   The choice of AEDP-7085 profiles for a specific programme is driven by considering a range of factors:
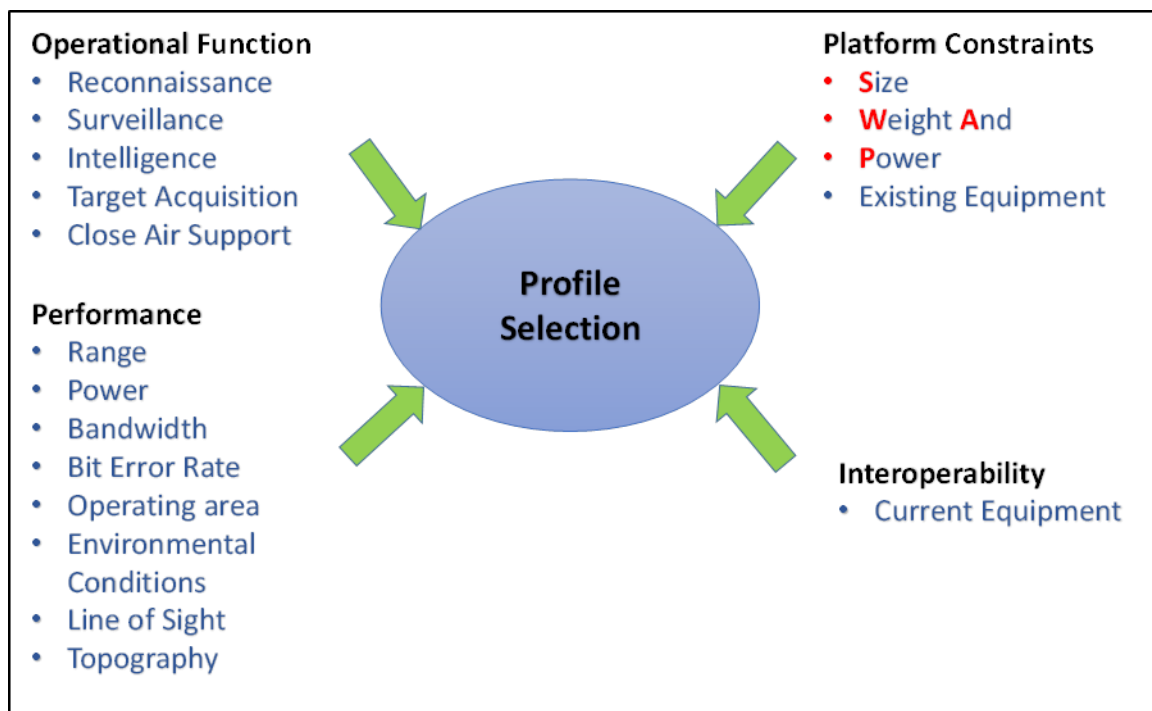
Figure 3-1: Issues Relating to Profile Selection

3.2.5. AEDP-7085 Compliance

1.   A data link terminal is AEDP-7085 compliant if it has been successfully verified by an accredited test organization to implement at least one preferred or allowed profile. The STANAG 7085 Custodian maintains a registry of compliant terminals, detailing which profiles were successfully tested for each terminal.

2.   For interoperability among pairs of AEDP-7085 compliant terminals it is necessary that both terminals correctly implement the same profile(s). Compliant terminals may also implement other modes (e.g. profiles that were not tested or additional data rates) without violating their AEDP-7085 compliance. The list of approved profiles covers a broad range of data rates (200 Kbps to 274 Mbps) and configuration options; they are designed to make selection easy, thereby encouraging use of standard modes in NATO environments.

3.3.   OTHER CONSIDERATIONS

3.3.1. Spectrum Limitations

1.   The number of systems deployed in the field of operations equipped with AEDP-7085 data link have increased steadily, challenging the capacity of RF spectrum in a given region and point in time.

2.   PMs are encouraged to consider data link solutions that use the frequency spectrum efficiently:

    a.   Use of lowest possible data rate

    b.   Use of directional antennas

    c.   Use of frequency efficient AEDP-7085 Profiles

3.   As an example, a single 274 Mbps AEDP-7085 channel consumes all the available spectrum for AEDP-7085 duplex data links. That is the reason why, when it is possible, limiting the data rate to 45 Mbps is recommended.

3.3.2. AEDP-7085 Profile Characteristics

1.   AEDP-7085 defines many profiles to answer different transmission requirements. Each profile has an associated status:

    a.   Preferred

    b.   Allowed

    c.   Deprecated

    d.   Obsolete

    e.   Deferred

2.   Other main characteristic differences between profiles choices are:

    a.   Implementation 1(CDL standard) or Implementation 2 (DSDL standard) profiles.

    b.   Unencrypted or Encrypted profiles.

    c.   Simplex / Full Duplex i.e. RL only / FL and RL.

    d.   Data rate ranging from 2 Mb/s up to 274 Mb/s for the RL and 0.2Mb/s to 10.71Mb/s for the FL.

    e.   Internal link management / External link management.

3.   The choice of AEDP-7085 Profiles for a specific programme is driven by considering two types of reasons:

a.   Programme internal reasons: Performance, Installation constraints.

b.   Programme external reasons: What other AEDP-7085 data link equipped platforms must you communicate with? A PM will have more flexibility in selecting Profiles if defining both collection and data processing / exploitation ends of the link. If only one end is being defined, the PM needs to know what Profiles are supported by the other in order to achieve interoperability.

3.3.3. Profile Performance

1.   The PM must consider the following requirements when selecting profiles for the data link:

a.   Bandwidth availability (how much data needs to be moved)

b.   Range (over what distance does the data need to be moved)

c.   Reliability (as defined by Bit Error Rate)

2.   The challenge is to transfer the required data, over the required range, reliably within the available allocated spectrum.

3.   Bandwidth / spectrum is a scarce resource and error correction coding techniques can exacerbate the problem because they can require high bit rates that use even more bandwidth / spectrum to ensure the reliability of the data link.

4.   Spectrum efficient modulation techniques are becoming attractive to minimize the bandwidth required but the trade-off is that such techniques require higher power, higher antenna gain and more elaborate Forward Error Correction (FEC) to maintain reliability.

3.3.4. Link Management

AEDP-7085 data links operating in full duplex allow for one terminal to manage the other. There are two strategies for doing this:

a.   External Link Management - Host computers at each end of the full duplex link can communicate coordination information with each other using a special radio channel, provided in many cases by another pair of radios, or it can be provided by the AEDP-7085 data link itself. Based on the coordination between the two computers, each computer configures, or reconfigures, its own AEDP-7085 terminal when desired and agreed.

b.   Internal Link Management – Applicable for Implementation 1 terminals only, the waveform defined by the AEDP-7085 includes a narrow band channel in each direction that carries this coordination, command and status information in defined messages. Therefore a surface terminal can reconfigure the other terminal using the internal, executive function channels.

3.3.5. Link Budget

1.   When designing an end-to-end radio communications system, it is necessary to calculate what is termed the link budget. A link budget is an accounting of all the gains and losses in a transmission system.

2.   It takes into account all the elements in the signal path from the transmitter, through the medium (i.e. free space, cable, fibre, etc.) to the receiver and calculates the gains and losses associated with these elements to calculate the signal strength at the receiver.

3.   A simple link budget equation will take the form of the equation below:

4.   Received Power (dBm) = Transmitted Power (dBm) + Gains (dB) − Losses (dB)

5.   Although guidelines and suggestions can be made regarding the possible areas for losses and gains, each link has to be analysed on its own merits.

6.   The link budget is used to determine the feasibility of any given system. By assessing the link budget, it is possible to design the system so that it meets its requirements and performs correctly without being over designed at extra cost.

7.   A link budget calculation also enables an understanding of the various performance interdependencies which must be traded off to realise a given cost and level of reliability for a communications link. Range for example is strongly influenced by transmit power, receiver sensitivity, noise and interference.

8.   For reference, two worked example link budgets are shown at section 3.6.

3.3.6. Communication Security – COMSEC

The Advanced Encryption Standard (AES) Output Feedback (OFB) mode is the NATO approved COMSEC solution for Implementation 1 of AEDP-7085 and the AES Counter (CTR) mode is the NATO approved COMSEC solution for Implementation 2 of AEDP-7085. However, there are some existing legacy AEDP-7085 COMSEC solutions (embedded or external to the data link).

3.3.7. Transmission Security – TRANSEC; Low Probability of Intercept / Low Probability of Detection (LPI / LPD)

1.   LPI / LPD is desirable for any transmission system but is not usually a primary requirement. Spread spectrum techniques can minimise interception at the expense of bandwidth.

2.   For the low data rate uplink, most of the AEDP-7085 profiles rely on LPI / LPD waveform using Direct Sequence Spread Spectrum (DSSS) [3] technique.

3.   For the downlink, because cumulating broadband and DSSS technique is very frequency band demanding, none of the current AEDP-7085 profiles provides LPI / LPD capability on the Return Link.

4.   Similarly, AEDP-7085 does not propose a profile with frequency hopping capability because of limited frequency band availability.

3.3.8. Robustness to Doppler Shift Effect

AEDP-7085 waveforms have been defined to face Doppler shift effects due to the relative speeds from a range of airborne platforms, including supersonic ones. Robustness to Doppler shift effect is one of the justifications for the choice of a single-carrier type waveform for AEDP-7085.

3.3.9 Robustness to Multi-path Effect

1.   Where signals arrive at the receiver from a transmitter via a variety of paths it can cause multi-path fading at the receiver. Multi-path effects creating fading at the receiver side can become prevalent in certain circumstances:

   a.   When a manpack receiver equipped with omnidirectional antenna is located in an urban type environment.

   b.   When the receiver is on board a navy ship and is surrounded by metallic structures.

   c.   When the data link is used at short range with omnidirectional antenna during taxiing, take-off and landing of an UAV.

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[3]Direct-Sequence Spread Spectrum (DSSS) is a spread spectrum modulation technique. Spread spectrum systems are such that they transmit the message bearing signals using a bandwidth that is in excess of the bandwidth that is actually needed by the message signal. This spreading of the transmitted signal over a large bandwidth make the resulting wideband signal appear as a noise signal which allows greater resistance to intentional and unintentional interference with the transmitted signal.

2.   Current AEDP-7085 Profiles do not implement equalization techniques to make them resistant to multi-path. The NIAG SG 133 study made recommendations to enhance the AEDP-7085 waveform to become multi-path resistant. Such enhancement, if required can be introduced in a future edition of AEDP-7085.

3.   Interference from a reflected transmission beam can be partially mitigated by use of the recommended circular polarization in AEDP-7085 systems. More complex multipath effects, e.g. those in urban environments, can severely reduce the usable range of AEDP-7085 links.

3.3.10.   AEDP-7085 Emerging Technologies

The emerging capabilities, Bandwidth Efficient Common Data Link (BE-CDL) and Digital Video Broadcasting – Satellite Second Generation (DVB-S2) both offer much better spectral efficiency and are likely to be included in a future edition of AEDP-7085.

3.4.   FACTORS TO CONSIDER IN SELECTING A DATA LINK

3.4.1. AEDP-7085 Data Link Design

As for the design of any other kind of system, the design of the AEDP-7085 data link for a specific programme will be the result of trade-offs to meet a set of transmission requirements such as:

    a.   Range

    b.   Downlink data rate

    c.   Uplink data rate

    d.   Transmission quality (Bit Error Rate)

    e.   Transmission security (LPI / LPD)

    f.   Communication security (Encryption)

    g.   Robustness to Doppler shift (Platform velocity)

    h.   Robustness to multi-path effect

    i.   Spectrum use efficiency

    j.   Out of band spurious emissions

    k.   Latency

l. Synchronization time

m. Coverage (Elevation – Azimuth)

n. Weight and Size

o. Power consumption efficiency

3.4.2. Link Properties

Some of the main aspects of the data link itself are summarised in the table below:

Data Link Property	Description
Latency	An important property at the network layer, delay in delivery of data can be troublesome in applications that demand NRT control functions. Does not make significant demands on the data link terminal at the physical layer.
Bit Error Rate	Not generally of concern in well-tailored data link systems. Bit errors can cause message errors if not corrected by Forward Error Correction (FEC) techniques ISR data links usually work with negligible bit errors or fail completely (e.g. when a wing blocks an aircraft antenna).
Acquisition Time	Dependent on the waveform employed (modulation, frequency hopping, etc.), the antennas in use, and the link configuration. Needs to be considered in the specification of the data link. When directional antennas are in use, acquisition time is often dominated by the time to find the communicating transmitter.
Networking	Can increase demands on a data link system, e.g. if data from different sources is queued through a single channel or if reliable data transmission (e.g. Transmission Control Protocol (TCP)) is required. May require two-way connections, and data rate specifications may need to be increased for a given terminal.
Image Transmission Requirements	Can make significant demands on instantaneous bandwidth. Full-motion video, in particular, requires high bandwidth. For this reason, some AEDP-7085 data links are used with effective compression techniques and FEC codes.
Data Formats and Protocols	Not of concern at the physical layer, but can influence link performance as their complexity increases. There may need to be a trade-off between bit-rate and transmission range if the message length is increased by complexity.

3.4.3. Performance Interdependencies

There are many interdependencies between data link hardware, waveform and performance. Some major relationships are shown in the table below:

Performance	Hardware influencing factors	Waveform influencing factors	Other influencing factors
Range	Size of antennas Power amplifier	FEC Modulation scheme	Data rate Frequency band Weather condition Weight and Size Power consumption
Downlink data rate	Size of antennas Power amplifier	FEC Modulation scheme	Standardized data rate Range Frequency band Weather condition Weight and Size Power consumption
Uplink data rate		FEC DSSS	Standardized data rate
Transmission quality	Size of antennas Power amplifier	FEC Modulation scheme Embedded encryption	Range Data rate Weather condition Weight and Size Power consumption
Transmission Security (LPI / LPD)	Directional antenna	DSSS	Available frequency spectrum Data rate
Communication Security		Embedded encryption	Range Data rate
Platform dynamics (speed, acceleration, attitude ratios)	Antenna position	Waveform resistance to Doppler shift effect	AEDP-7085 waveform is designed to resist Doppler shift effect
Robustness to multipath		FEC Equalization	AEDP-7085 waveform does not yet implement equalization
Power consumption efficiency	Directional antenna PA technology (SSPA versus TWTPA)[4]	FEC	Out of band spurious
Spectrum use efficiency	Directive antennas Duplexer	Modulation FEC Base band shaping	Lower data rate
Out of band spurious	Duplexer PA with back off	Base band shaping	ITU requirements
Coverage (elevation – azimuth)	Multiple antenna on board	FEC and interleaving to resist antenna switching	Weight and Size
Latency		Encryption, FEC and interleaving	Data rate

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[4] Solid State Power Amplifiers (SSPA) and Travelling Wave Tube Power Amplifiers (TWTA) are both viable alternatives to consider for power amplification, with SSPA the more advantageous at lower power, i.e. less than 20 watts. At greater power levels, size, weight, and efficiency become important characteristics that skew the preferred choice to the TWTA.

3.4.4. Vendor Requests For Proposal

A PM may solicit proposals from potential vendors to supply an AEDP-7085 capability. This Request For Proposal (RFP) would typically require a vendor to indicate their capability to be compliant with the PM's preliminary requirements. The following gives some key considerations which the PM should include within an RFP:

- a.   The AEDP-Edition to which the capability must be compliant.

- b.   The Implementation(s) to be supported.

- c.   Profiles to be supported (for each Implementation if applicable).

- d.   Operating frequency band(s).

- e.   Provide reference to AEDP-7085 supporting documentation i.e. AEDP-7085.1, Interoperable Data Links for ISR Systems – Implementation Guidance.

- f.   A requirement for terminals to meet the associated Implementation certification, also defined by AEDP-7085.1.

3.5.   FREQUENTLY ASKED QUESTIONS

1.   *The NATO frequency allowance doesn't suit my country.*

Frequencies for NATO ISR use have been negotiated as a compromise that fits many member countries. The recommended Ku-band spectrum is adequate to support most of the envisaged operations [5].

2.   *Where can I get the actual AEDP-7085 documents?*

Each NATO country has a national NATO publications repository.

3.   *What RF equipment and antennas should I use for my AEDP-7085 system? How much transmit power do I need?*

AEDP-7085 is scoped to ensure interoperability. It does not address terminal or data link system performance issues that do not affect interoperability. Refer to your ISR system requirements to determine ancillary equipment to meet your specific needs.

4.   *My country's ISR data is classified. What encryption does AEDP-7085 support?*

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[5] Although it is not currently included in the AEDP-7085 it is worth noting that BE-CDL is not frequency specific.

The Advanced Encryption Standard (AES) Output Feedback (OFB) mode is the current NATO approved COMSEC solution for Implementation 1 of AEDP-7085 and the AES Counter (CTR) mode is the current NATO approved COMSEC solution for Implementation 2 of AEDP-7085.

5.   *We already have some CDL terminals. Are they AEDP-7085 compliant?*

Refer to the registry of compliant terminals, maintained by the STANAG 7085 Custodian, for an official determination. AEDP-7085 includes a backward compatibility principle.

6.   *My CDL terminals are not AEDP-7085 compliant. Will they interoperate with Implementation 1 terminals of AEDP-7085?*

It may be possible to achieve a measure of interoperability between some CDL terminals and AEDP-7085 Edition A compliant terminals. The AEDP-7085 profiles are derived from specific configurations defined by the CDL Waveform Specification, so in most cases it should be possible to place older CDL terminals into a compatible configuration. Do not expect link management functions to work, as these are new in Edition 3. The 7085 frequency allowance is a subset of the US allowance, so it should be possible to tune your older terminal to match the frequencies used by the AEDP-7085 terminal.

7.   *Can I use AEDP-7085 data link for command and control?*

In some cases, AEDP-7085 data links have been used for Command and Control (C2) of collection platforms. However, careful consideration of possible performance issues is required and the use of a dedicated, lower frequency band C2 data link (e.g., a STANAG 4660 data link, optimised for interoperable data links for C2 on unmanned systems) is recommended whenever possible.

Extra safety and reliability in a communications architecture will be achieved by using STANAG 4660 as the C2 data link.

3.6. EXAMPLE LINK BUDGET CALCULATIONS

3.6.1. Scenario 1 – Tactical UAV To Support Route Clearance

A Tactical UAV (TUAV) is being employed to conduct route clearance in support of a combat logistic patrol moving in convoy from one operating base to another. The TUAV Ground Control Station (GCS) is collocated with the Brigade headquarters where live imagery analysis is being undertaken. The TUAV may be up to 100km from the GCS. The convoy commander is provided with live imagery via a remote viewing terminal.
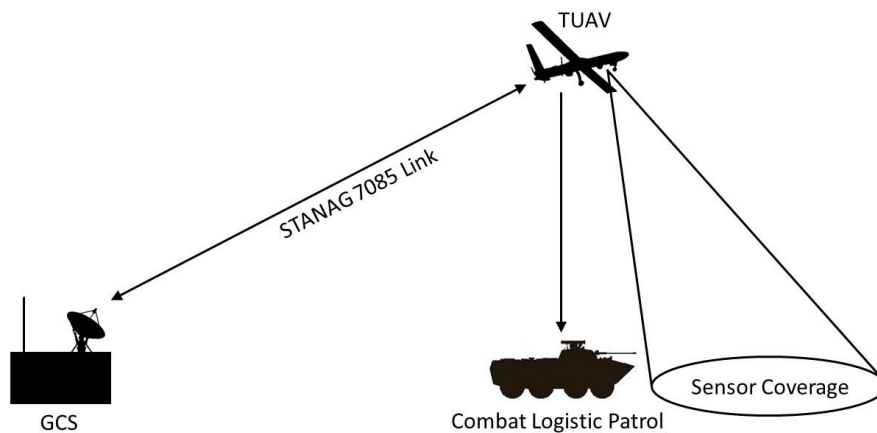
System details

- 10.71 Mbps data rate
- TUAV 10 Watt Power Amplifier
- TUAV Omni Antenna
- GCS Directional Antenna

AEDP-7085			DSDL
	Data Rate	Mbps	10.71
	Frequency	GHz	14.7
Tx	Power Consumption	W	50
	PA Efficiency	%	20%
	Saturated Power	W	10
	Output backoff	dB	1.5
	Antenna Gain	dBi	2
	Radome Loss	dB	0
	Pointing Loss	dB	0.5
	Cable Loss	dB	2
	EIRP	dBm	38
Transmission	Slant Range	Km	100
	Free Space Loss	dB	155.8
	Rain Loss	dB	0
	Total Loss	dB	155.8
Rx	Received Power	dBm	-82.2
	Antenna Gain	Dbi	39.2
	Polarization Loss	dB	0.2
	Radome Loss	dB	0.7
	Tracking Loss	dB	0.3
	Cable Loss	dB	2.5
	Noise Figure	dB	4.5
	kT	dBm/Hz	-174
	Modulation		QPSK
Result	Eb/No received	dB	16.95
	Eb/No required	dB	4.14
	Link Margin	dB	12.8

The link budget calculation shows that at the maximum operating range (100 km) there is a positive link margin of 12.8 dB.

Note: This link budget does not consider losses due to atmospheric attenuation (e.g. rain). A system designer should consider these losses using an ITU model.

3.6.2. Scenario 2 – ISR Aircraft to support area surveillance

An ISR aircraft is being employed to conduct surveillance of a Target Area of Interest (TAI). The Ground Control Station (GCS) is collocated with the Divisional headquarters where live imagery analysis is being undertaken. The ISR aircraft may be up to 225km from the GCS.
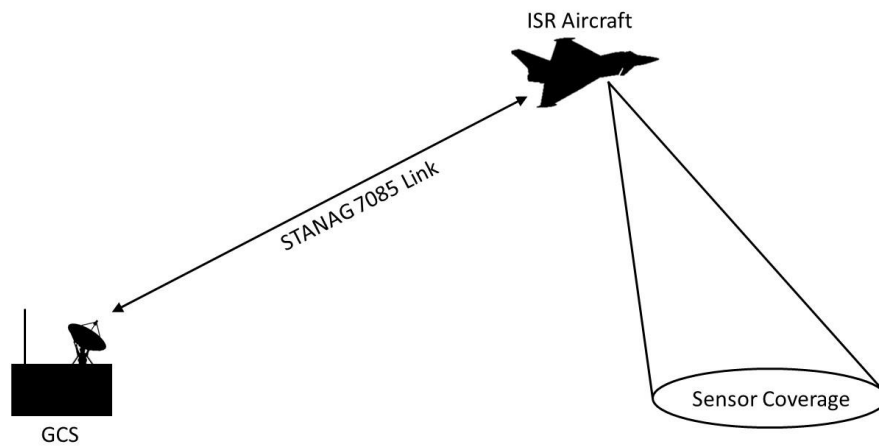
System details

- 44.7 Mbps data rate
- Aircraft 20 Watt Power Amplifier
- Aircraft Directional Antenna
- GCS Directional Antenna

AEDP-7085				DSDL
	Data Rate	Mbps		44.7
	Frequency	GHz		14.7
Tx	Power Consumption	W		100
	PA Efficiency	%		20%
	Saturated Power	W		20
	Output backoff	dB		1.5
	Antenna Gain	dBi		18
	Radome Loss	dB		1
	Pointing Loss	dB		1
	Cable Loss	dB		2
	EIRP	dBm		55.5
Transmission	Slant Range	Km		225
	Free Space Loss	dB		162.8
	Rain Loss	dB		0
	Total Loss	dB		162.8
Rx	Received Power	dBm		-71.8
	Antenna Gain	Dbi		39.2
	Polarization Loss	dB		0.2
	Radome Loss	dB		0.7
	Tracking Loss	dB		0.3
	Cable Loss	dB		2.5
	Noise Figure	dB		4.5
	kT	dBm/Hz		-174
	Modulation			QPSK
Result	Eb/No received	dB		21.22
	Eb/No required	dB		4.64
	Link Margin	dB		16.6

The link budget calculation shows that at the maximum operating range (225 km) there is a positive link margin of 16.6 dB.

Note: This link budget does not consider losses due to atmospheric attenuation (e.g. rain). A system designer should consider these losses using an ITU mode.

| **CHAPTER 4   DESIGN CONSIDERATIONS** |

4.1. PURPOSE

The purpose of this document is to provide supplemental information to aid understanding of AEDP-7085 terminology, recommendations and compliance.

4.2. TRANSPORTED DATA

1.   AEDP-7085 data links provide one or more user data channels capable of transporting any type of user data. Profile utilization ensures that the User Channels of Case A data link terminals are interoperable at the physical layer, that the User Channels of Case B data link terminals are interoperable at the data link layer, and that the User Channels of Case C terminals are interoperable at the network layer. Reserved Channels are fully defined in AEDP-7085 to ensure their interoperability, regardless of the Case. Interoperability of Auxiliary User Channels is not assured as only their location in the multiplexer frame is specified in AEDP-7085. The definition of the Auxiliary User Channels is outside the scope of AEDP-7085 and consistent use of these channels cannot be assured.

2.   The user channels of AEDP-7085 data links transparently transmit any kind of formatted data. User data that is delivered to the entry-point of a transmitting terminal is provided at the exit-point of a receiving terminal. Any framing or formatting added to the data stream by the transmitting terminal is removed at the receiving terminal. As stated in AEDP-7085, the user data transport function is indifferent to the meaning and format of the user data. It is incumbent on system designers and data terminal integrators to ensure that collection platforms and data processing/exploitation platforms agree on the meaning and format of the transported data. System integrators of multi-channel data link terminals must also ensure that the specific channels used by the transmitting terminal match those of the receiving terminal.

4.3. BANDWIDTH CONSIDERATIONS

4.3.1. Radiated Bandwidth.

The NATO Joint Civil/Military Frequency Agreement (NJFA) provides only a limited band (14.62 to 15.23 GHz) for AEDP-7085 data links. Efficient use of this spectrum requires that the bandwidth of the signals transmitted by AEDP-7085 terminals be limited. As a result, AEDP-7085 establishes limits on the occupied bandwidth for each data rate.

a. AEDP-7085 does not specify how the bandwidth of Implementation 1 terminals is to be reduced. However, Implementation 1 compliant terminals must be interoperable with terminals employing RRC filtering.

b. For Implementation 2 compliant terminals, RRC filtering must be implemented as required by the profile definitions in order to reduce occupied bandwidth.

4.3.2. Receiver Bandwidth.

AEDP-7085 does not establish constraints on receiver bandwidth. However, receiver design must take into account the characteristics of the transmitted signal required by AEDP-7085.

4.4. LINK POWER BUDGET

1. Although link power affects the operational capability of a data link, it does not, in and of itself, affect interoperability. Accordingly, neither AEDP-7085 nor AEDP-7085.1 levy specific requirements on such performance parameters as antenna gain and beamwidth, transmit power output and receiver sensitivity. It is worth noting, however, that traditional implementations of CDL and DSDL, on which Implementations 1 and 2 are based, usually use right-hand circular polarization (RHCP). Pairing vertical polarization with RHCP is known to result in a nominal 3 dB degradation in link margin. RHCP may offer an advantage in environments where multipath interference is likely. It is therefore recommended that AEDP-7085 terminals use RHCP antenna polarization.

2. Bit error ratio, also known as bit-error rate, or BER, is a critical performance criterion for many AEDP-7085 applications. It represents the fraction of incorrectly decoded bits at the receiver compared to the total number of received bits. The most important means of limiting BER is by controlling the signal to noise ratio (SNR) in the receiver. Typical means of improving SNR include increasing transmitter power, increasing antenna gain at either end of the link, and limiting or reducing the maximum operating range.

4.5. CO-SITE INTERFERENCE

1. Undesired signal energy of sufficient power, when admitted to a receiver, will interfere with the ability of the receiver to correctly detect the desired signal. When this stray energy originates at the site or on the platform at which the receiver is located, it is called co-site interference. Implementations 1 and 2 mitigate co-site interference by separating the tuneable range of their respective transmitters and receivers by a suitable distance, enforced with filters for the transmit and receive bands. Thus, a single terminal can be prevented from interfering with itself by the implementation design.

2.   When multiple terminals are installed at a single site or on a single platform, additional steps may need to be taken to prevent co-site interference. These extra measures are notably required for a relay platform, because it requires two terminals, and one of the terminals might be designed to transmit in the same frequency range in which the other is receiving.

4.6.   RELAY OPERATIONS

1.   A platform performing a relay between an ISR collection platform and a data processing/exploitation station needs a collection terminal to communicate with the exploitation station and a data processing/exploitation terminal to communicate with the collection platform.   Under normal circumstances, this dual terminal installation would have a very high probability of incurring self-interference. This situation is illustrated in Figure 4-1. A common solution is to reverse the usage of forward and return link bands on one of the links. For example, the relay's exploitation station-to-relay link might be switched so that the forward link runs in the normal return link band, and the return link uses the normal forward link band. This situation is illustrated in Figure 4-2. This allows both relay transmitters to transmit in the forward link band, while both relay receivers are tuned to the normal return link band. This solution may require some terminals to be able to switch their configuration for relay operations and return to standard configuration when relay operation is not required.
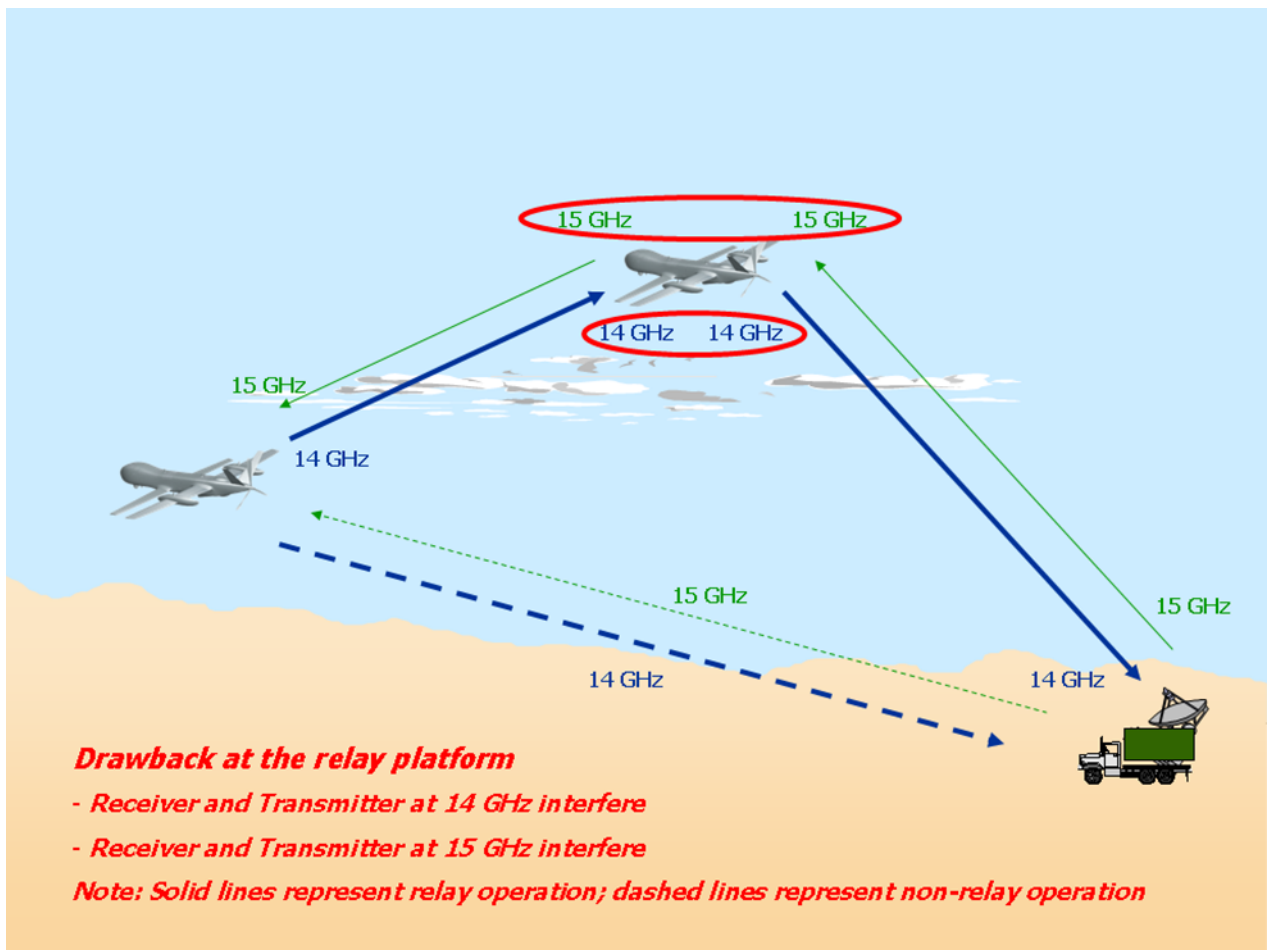
Figure 4-1: Relay Operation Using Normal Frequency Plan
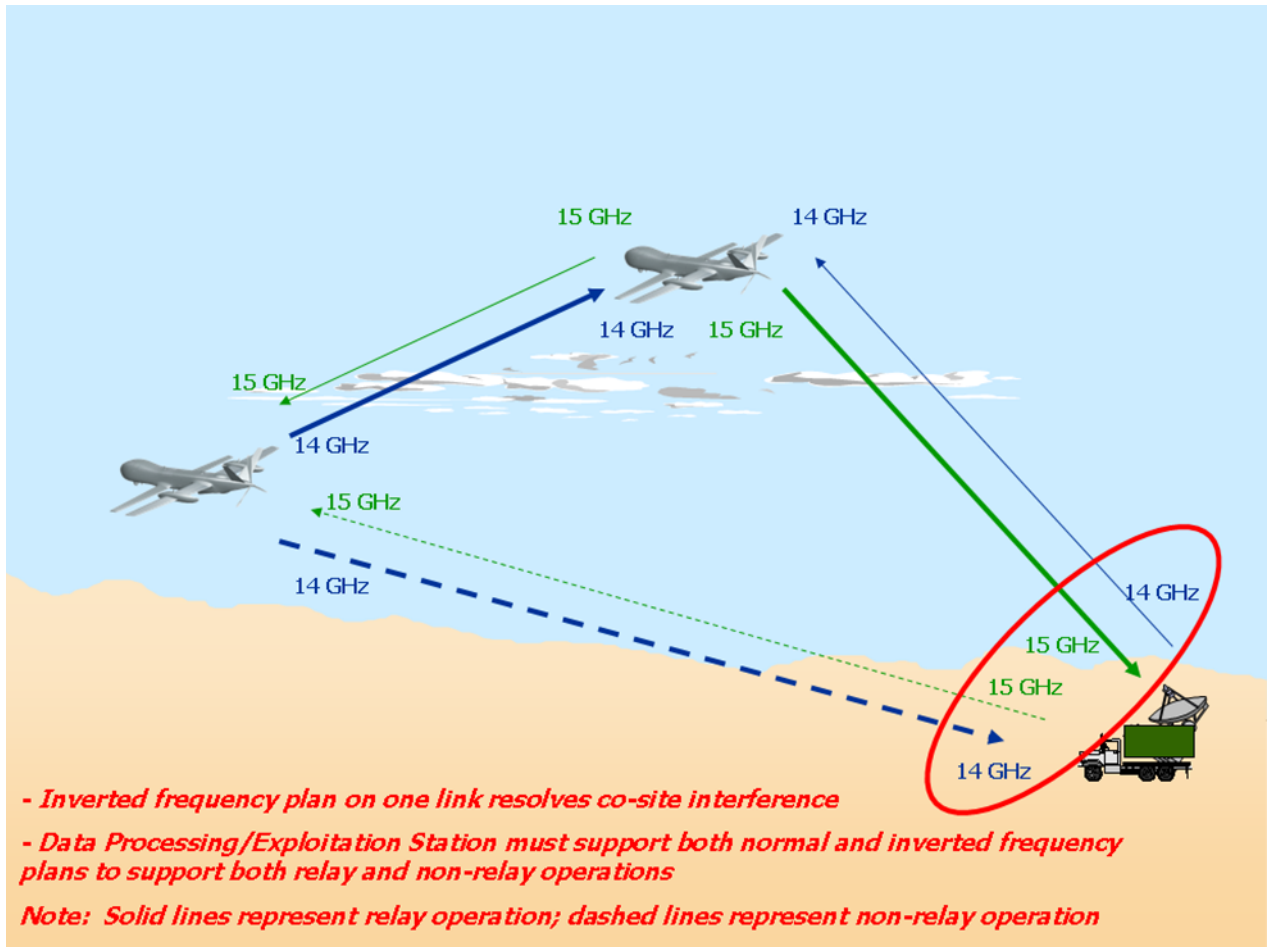
Figure 4-2: Relay Operation Using Inverted Frequency Plan

2.   Caution is advised if this band reversal is not implemented as additional measures such as special filtering, restricted frequency-channel assignment, antenna separation, and careful attention to antenna sidelobe and backlobe rejection may be required for successful relay operation.

3.   In either case, due to the limited spectrum available, relay operation may require constraining user data rates to the lower data rates.

4.   At present no AEDP-7085 profiles have been defined to support relay operation and additional profiles will be required.

4.7.   BIT MAPPINGS

1.   In communication systems employing m-ary phase-shift keying (MPSK) two common mappings exist for assigning tuples of log2(m) bits to each transmission symbol: Natural mapping and Gray mapping.

a.   Natural (or Binary) mapping assigns the phase sequentially with the binary numeric representation of the information word. If natural mapping is used, the words that map to adjacent phases may differ by many bit positions.

b.   Gray mapping is a technique for mitigating the effects of word errors by mapping binary words into phases in a way in which adjacent phases are only different in 1 bit position

2.   Figure 4-3 illustrates QPSK constellations for both natural and gray mapping. For illustrations of mapping for higher order modulations see the underlying references for each Implementation.

Figure 4-3: QPSK Constellations

4.8.   LINK MANAGEMENT

1.   Figures 2-1 and 3-24 in Edition A of AEDP-7085 illustrate the flow of link management data between control stations and data link terminals when using internal link management.   These figures show a dedicated link management interface between Control Station 1 and its collocated data link terminal. It is not the intent of these figures to suggest that a dedicated link management interface is required by data link terminals employing internal link management.   AEDP-7085 does not preclude using the local user data interface for exchange of link management data between control stations and collocated data link terminals regardless of the link management mechanism (internal or external) used to control the remote data link terminal.

2.   Implementation 1 terminals using internal link management provide a feedback mechanism to provide assurance to the forward link transmitting terminal that the receiving terminal has correctly received EFC commands. Forward link transmitting terminals should not attempt to issue load commands until such assurance is received, otherwise link loss may occur.

4.9. VARIABLE PARAMETERS

Variable Parameters are parameters whose values can be changed during a mission without changing the selected profile within the terminal. The values of these parameters are selected from the range of values of design characteristics. These parameters may be modified during a mission using link management data. Variable parameters affecting the interoperability of cooperating data link terminals are listed in Table 4-1. The values of these parameters must be agreed between the parties at both ends of a data link. Any variable parameters not listed in Table 4-1 are outside the scope of AEDP-7085.

Table 4-1: Variable Parameters

Configuration	Parameter
Active Configuration	
	Forward Link Carrier Frequency
	Return Link Carrier Frequency
	PN Code
	Crypto Key Index
Fallback Configuration	
	Forward Link Carrier Frequency
	Return Link Carrier Frequency
	PN Code
	Fallback Timeout Interval
	Crypto Key Index

4.10. LINK PROTECTION

AEDP-7085 links operated without COMSEC are vulnerable to interception, spoofing, and other forms of electronic exploitation. Such exploitation could render the return link, as well as the forward link inoperable. AEDP-7085 provides profiles that employ spread spectrum techniques to protect the forward links.

4.11. DATA PROTECTION

1.   Encryption is one means of reducing the vulnerability of data to exploitation and spoofing. The following considerations apply to encrypting AEDP-7085 data links in particular

a.   Individual User Data channels can be encrypted outside the data link terminal. This external encryption, sometimes called source encryption, can protect the user data being transmitted, although it may not protect message headers, user data framing, or management data exchanged between terminals, and it does not protect Data Link Layer and Physical Layer framing added by the data link terminal.

b.   The recommended remedy for this is bulk encryption, which must be applied after all data channels are combined.

2.   Transmitting and receiving terminals must use the same encryption scheme and keys for data exchange to occur.

4.12. OVERVIEW OF CASES A, B, AND C

1.   AEDP-7085 profiles call out specific cases that define the functions of the data link in terms of type of traffic and any permitted or required modifications to that traffic.

a.   Case A data links may be thought of as simple bit pipes. No restrictions are placed on the traffic to be transmitted – as long as the traffic is a stream of bits.

b.   Case B data links assume and require the user data to be transmitted to be framed with data link protocols as specified by the profile being used. These packets might, or might not, carry IP data packets: the handling of the data does not use the IP information or change it in any way. How and where the transmitted packets were framed is not specified. For example Ethernet packets enter the data terminal from an Ethernet LAN, but internal conversion of transmit data from other formats (e.g., bit stream, USB, Mil-Std-1553B) to Ethernet packets is not prohibited. AEDP-7085 does not specify the physical and data link layer interfaces to mission and exploitation equipment.

c.   Case C data links transmit user data that is always encapsulated in IP data packets. The transmit terminal receives the IP packets, and then frames them with Physical Layer and Data Link Layer protocols as specified by the profile being used. The receiving terminal distributes the received IP packets to the mission or exploitation equipment, preserving, removing, or replacing the Physical Layer and Data Link Layer framing as necessary.

2.   Normally, successful communication requires use of the same profile by both terminals. However; under certain conditions, end-to-end interoperability may be achieved between terminals operating different profiles. For example, a terminal that

is transmitting IP data using a Case B profile, may be successfully received by a terminal using a Case C profile so long as the physical-layer and data link-layer characteristics of both profiles are identical. This situation is illustrated in Figure 4-4.
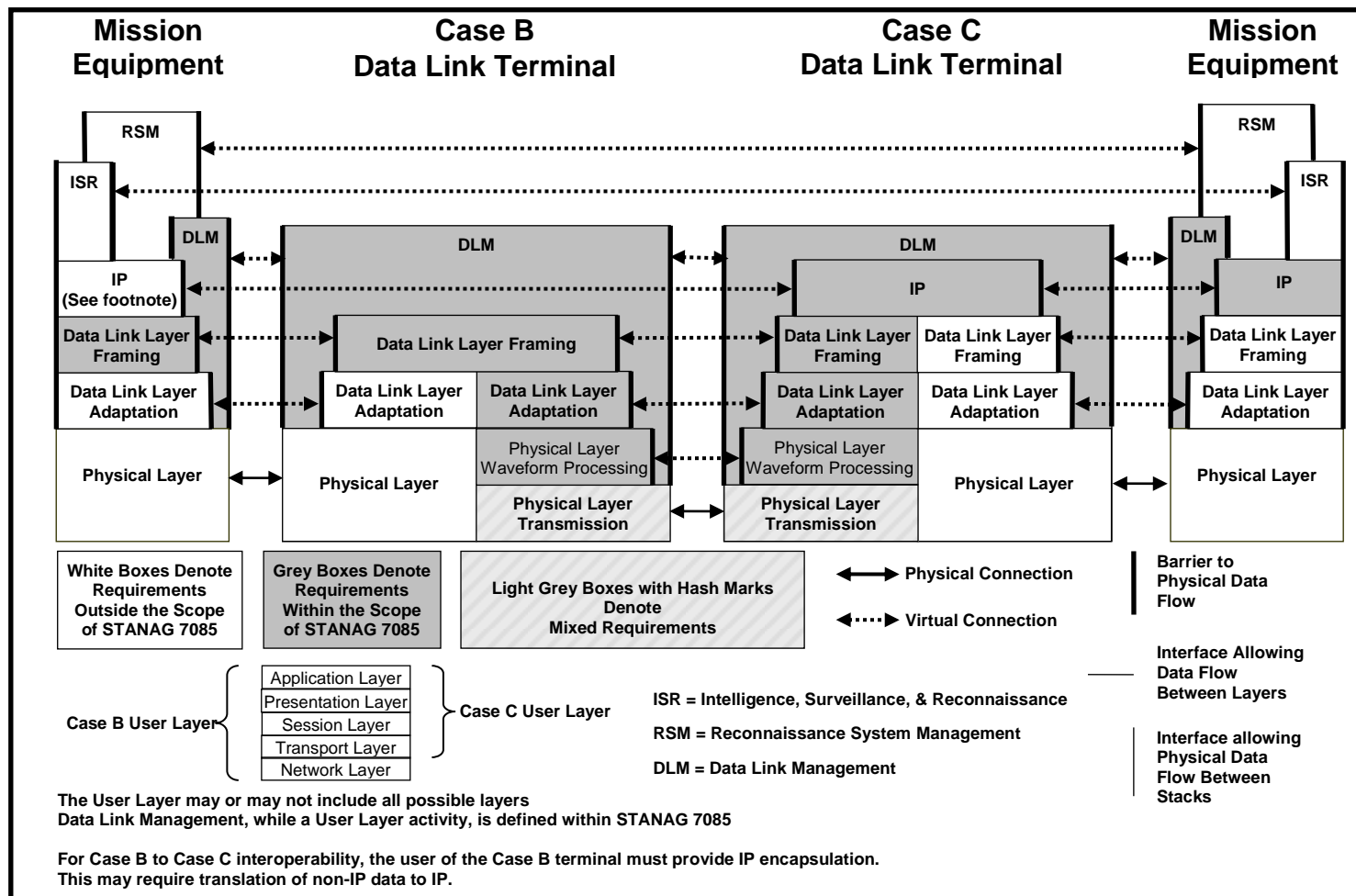
Figure 4-4: Example of Interoperability Between Terminals Operating With Different Profiles

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CHAPTER 5   TEST, EVALUATION, AND CERTIFICATION

5.1.   INTRODUCTION

5.1.1. Purpose

1.   The STANAG 7085 custodian established the policy and procedure guidance in this document to assess system compliance and sustain system interoperability by all fielded and developmental implementations of AEDP-7085 "Interoperable Data Links for Intelligence, Surveillance, and Reconnaissance (ISR) Systems". This guidance prescribes the AEDP-7085 compliance test and certification policies, and defines roles and responsibilities.

2.   This guidance is established under the NATO Common Interoperability Standards (NCIS) Testing Concept and the NATO Intelligence, Surveillance, and Reconnaissance (ISR) Interoperability Architecture (NIIA). This guidance allows vendors (the manufacturer/retailer responsible for producing or marketing a system, subsystem, or product), system designers, system managers, test sponsors, and test organizations to plan and perform AEDP-7085 profile compliance testing. Compliance testing and recommendations to the custodian for certification of a terminal remain the responsibility of an accredited test organization such as the US Joint Interoperability Test Command (JITC) or the Direction Générale de l'Armement – Maîtrise de l'Information (DGA-MI).

5.1.2. Objective

The goal of AEDP-7085 test, evaluation, and certification is to assure the interoperability of data link terminals designed and built to satisfy the requirements of AEDP-7085 and configured to operate with the same profile. This will be accomplished by the following:

  a.   Verify the syntactical correctness and unambiguous interpretation of AEDP-7085 documentation.

  b.   Conduct compliance tests and analyses to verify that terminals under test comply with AEDP-7085 when configured with each profile requested for testing.

  c.   Maintain a listing of certified terminals to enable potential users to identify terminals that are capable of interoperating.

5.1.3. Scope

This document encompasses the following AEDP-7085 compliance test and certification information:

      a.   Test, evaluation, and certification policy

      b.   Test, evaluation, and certification responsibilities

      c.   Test organizations

      d.   Compliance test and evaluation

      e.   Test requirements

5.1.4. References

1.   AEDP-2, Volume 2, Edition 1 NATO Intelligence, Surveillance, and Reconnaissance (ISR) Interoperability Architecture (NIIA),

2.   (NR) AEDP-7085, Edition A Interoperable Data Links for ISR Systems (NU)

3.   (S-USA) Waveform Specification for the Standard Common Data Link (CDL) Segment, specification number 7681990, revision F, change 1, February 2005 (U)

4.   (S-FRA) Waveform Specification for the DSDL Standard, specification number 2008-277558/DET/CEP/TEC/SD, 2008/0095/DSA/SDAQ/BSDC/SD, Revision 1.1 – 22 May 2007 (U)

5.1.5. Applicability

This document applies to data link terminals designed to be compliant with reference 2 above.

5.2.   AEDP-7085 TEST EVALUATION AND CERTIFICATION

5.2.1. Policies

1.   The overall policy for test, evaluation and certification of JCGISR STANAGs is established in the NIIA. If the guidance in this document deviates from the general guidelines established in the NIIA, the guidance herein takes precedence.

2.   All AEDP-7085 compliance testing will be conducted by an accredited, independent, and impartial test organization.

3.   Test organizations will be accredited by the custodian for a period of four years based on information contained in an application submitted in accordance with

article B009. Accreditation may be renewed upon submission of an updated application. Accreditation may be revoked at the discretion of the custodian.

4. Test locations and associated costs for compliance testing shall be negotiated between the test sponsor and test organization. Requests for testing should be addressed to the test organization point of contact (POC) following the general procedures outlined in this document.

5. AEDP-7085 terminals will be tested in accordance with the test criteria documented herein. Although different test facilities may use different test procedures and protocols, all test facilities will use this common set of test criteria.

6. A test report will be generated that documents the tests conducted, the discrepancies found and the status of each, the specific data link terminal tested and the profiles tested on that terminal.

7. All data link terminals that successfully complete compliance testing will be identified to the custodian of STANAG 7085 for listing in the registry of certified terminals.

    a. No terminal that demonstrates compliance only with obsolete profiles will be added to the registry of certified terminals.

    b. No terminal that is listed in the registry of certified terminals will be removed from the registry exclusively because all of the profiles to which it complies have been downgraded to obsolete.

8. The custodian or test sponsor may request compliance retesting. Retesting may be appropriate when:

    a. Changes have been made to correct deficiencies discovered during previous compliance testing.

    b. Changes have been made to the standard compliance requirements.

    c. Latent functional problems have been discovered with previously tested data link terminals.

    d. Changes have been made to a configuration controlled item of a previously certified data link terminal.

9. At the discretion of the custodian, a data link terminal may be included in the registry based on a derived certification. A derived certification is a terminal certification based on testing of a previously certified terminal. For example, if a test sponsor can satisfy the custodian that a terminal represents only a re-packaging of a

previously certified terminal, the new terminal may receive a derived certification based on the compliance test of the original terminal without further testing.

10.   The test sponsor may appeal to the custodian for complaints involving test organization accessibility, test procedures, or test results. The test sponsor will appeal to the custodian in writing. Appeals regarding test results will be filed within 60 calendar days after issuance of the test summary and assessment by the test organization.

11.   Appeals of custodian decisions can be made to JCGISR.

12.   Each test organization will report all successful system compliance tests to the custodian within 60 calendar days of test completion. The report will include as a minimum the items listed in article B0013.

13.   Accredited test organizations will notify the custodian of planned or required modifications to test resources. The notification will include the reason for modifying the test resources. The custodian will determine if the test organization needs to be reaccredited.

14.   Should a test organization cease to be accredited, all AEDP-7085 test data and test reports maintained by the organization must be provided to the custodian for archival.

15.   Test organizations may perform compliance testing at their own facility or at another location if agreed by the test sponsor. Test organizations are encouraged to acquire portable test suites.

5.2.2. AEDP-7085 Registry

The registry of AEDP-7085 certified terminals contains a listing of data link terminals that have demonstrated compliance with AEDP-7085 in accordance with the policies established elsewhere in this document. Information provided in the registry will include as a minimum:

    a.   Precise designation and configuration of tested terminal

        (1).   Name or nomenclature

        (2).   Part/model number

        (3).   Version/revision (hardware/software/firmware/operating system)

        (4).   Serial number

b.   Terminal type (collection, data processing/exploitation, convertible, relay)

c.   Profiles

d.   Source of certification (new/derived)

e.   Certification date

f.   Test sponsor

g.   Test organization

h.   Program name (filled-in/blank)

i.   Platform (filled-in/blank)

j.   Notes (filled-in/blank)

5.2.3. Responsibilities

1.   **STANAG 7085 Custodian.**   The STANAG 7085 custodian is the delegated NATO authority for the management oversight of AEDP-7085 Test, Evaluation, and Certification.   The STANAG 7085 custodian has the following responsibilities: STANAG 7085 Custodian

a.   Defines the policies and procedures for AEDP-7085 test, evaluation and certification.

b.   Produces and maintains the compliance test criteria documentation for the AEDP-7085.

c.   Arbitrates any test issues from compliance testing.

d.   Assists in resolving functional and interoperability problems with certified terminals as requested.

e.   Coordinates with affected parties to resolve AEDP-7085 issues arising during compliance testing and fielding of certified terminals that may impact ISR system interoperability.

f.   Approves accreditation of AEDP-7085 Test Facilities.

g.   Maintains a list of accredited AEDP-7085 Test Facilities. This list will include point of contact information and locations.

h.   Publishes and maintains a registry of certified terminals.

i.   Reviews completed compliance test reports and test organization recommendations for certification, and approves or disapproves the inclusion of a tested terminal on the registry of certified terminals.

j.   Notifies the test sponsor of the outcome of the custodian's review of the test report.

k.   Notifies the test sponsor when retesting of a system becomes necessary for any of the reasons cited in paragraph 8 of article B006.

l.   Contacts test sponsors at least every five years, beginning at the initial certification date, to assure that information contained in the registry remains current and accurate.

2.   **AEDP-7085 Test Organization.** AEDP-7085 test organizations encompass the facilities, hardware, software, and personnel that support compliance testing of AEDP-7085 capable terminals. Each test organization has the following responsibilities:

a.   Establishes, manages, and operates the compliance test facility.

b.   Maintains knowledge, skill, and proficiency of test personnel.

c.   Plans, schedules, and executes compliance tests.

d.   Prepares, based on the test objectives and evaluation criteria, a cost estimate to plan, conduct, and report on the test.

e.   Coordinates with test sponsors and vendors as necessary to identify any test adaptation units required to interconnect the terminal to be tested and test equipment provided by the test organization.

f.   Ensures that any test adaptation units do not compromise the integrity of compliance testing. (This may require additional testing of the terminal when integrated into a platform.)

g.   Generates and maintains the necessary compliance test procedures as part of the accreditation of the facility to perform AEDP-7085 compliance testing.

h.   Processes test and retest requests.

i.   Provides test results to the test sponsor, and if successful, provides a certification recommendation to the custodian.

j.   Advises the custodian regarding test issues.

k.   Coordinates with other AEDP-7085 Test Facilities as needed.

l.   Participates in Custodian Support Team (CST) meetings if requested by the custodian.

m.   Assures, in cooperation with the test sponsor, that their respective Nation's legal requirements are satisfied regarding transfer of defence technology or provision of defence services.

n.   Maintains a list of test equipment requiring calibration and the calibration status of the equipment.

o.   Maintains records pertaining to test data and test results for a minimum of two years or as long as the tested terminal is listed in the registry of certified terminals.

3.   **Test Sponsor.** A test sponsor is any individual or organization interested in acquiring or providing funding for the purpose of testing a terminal for compliance with AEDP-7085. For example, a test sponsor may be an agency, nation, or commercial entity. A test sponsor has the following responsibilities:

a.   Requests test support for AEDP-7085 compliance certification.

b.   Coordinates with the vendor to request AEDP-7085 compliance test support to include retesting.

c.   Coordinates with test organizations and vendors as necessary to identify any test adaptation units required to interconnect the terminal to be tested and test equipment provided by the test organization.

d.   Provides funding for provision of any test adaptation units required to perform compliance testing.

e.   Provides, in cooperation with the vendor, a means to manage the terminal under test (e.g. laptop computer with appropriate software) during compliance testing.

f.   Assists in arranging test license agreements, purchase orders, terms and conditions for test agreements, frequency authorizations, and

international agreements (as needed) to accomplish compliance testing.

g.   Provides primary and alternate points of contact for compliance test matters.

h.   Plans, funds and schedules the compliance test including costs, manpower, equipment, interface adaptation, shipping, travel, and per-diem costs.

i.   Coordinates with vendors and Test Facilities to resolve compliance testing issues.

j.   Assures, in cooperation with the Test organization, that their respective Nation's legal requirements are satisfied regarding transfer of defence technology or provision of defence services.

k.   Reports changes to a configuration controlled item of certified terminals or problems identified with certified terminals to the custodian.

4.   **Vendor.** The vendor may, in some cases, be the test sponsor. A vendor has the following responsibilities:

a.   Provides the test organization the necessary information to accomplish testing.

b.   Provides technical support to answer questions and make modifications as required to facilitate testing.

c.   Cooperates with the Test organization to resolve functional problems experienced during compliance testing

d.   Reports changes to a configuration controlled item of certified terminals or problems identified with certified terminals to the custodian and the test sponsor.

5.2.4. Accreditation of Test Organizations

1.   Any NATO member nation may nominate a test organization to the custodian. An application for accreditation shall be submitted in English and shall provide:

a.   The legal name of the organization, full address, contact information for authorized representatives, and identification of the authorized signatories.

b.   A declaration of ownership.

c. An organizational chart defining relationships relevant to the test services to be provided. Include a description of how they maintain an independent decisional relationship between themselves and their clients, affiliates, and other organizations.

d. A general description of test lab/facilities, scope of operations and test capabilities.

e. Detailed information on available test services, expertise/competence of personnel, and availability of appropriate test resources.

f. AEDP-7085 implementations and profiles for which accreditation is being sought.

g. Test plans, procedures, and reference standards pertaining to item f.

h. A description of process for scheduling test services and any known organizational restrictions on the availability of test services.

i. Information on how test sponsors pay for test services.

j. A description of how the test organization will maintain knowledge, skill, and proficiency of its test personnel for the scope of AEDP-7085 test services that they offer as well as an agreement to limit work/services to areas where competence and capacity are available.

k. A description of organizational record keeping pertaining to test data, test results, appeals, complaints and adjudications, and equipment calibration.

l. A declaration that the organization will report to the STANAG 7085 custodian within 30 days of any major changes involving location, ownership, management structure, authorized representatives, approved signatories, decreased expertise/competence, and/or the facilities of the test organization.

2. The STANAG 7085 custodian will make the final determination on accreditation of the candidate based on its general capabilities and the completeness of its proposal, and will advise the test organization and nominating nation of the acceptance or rejection and the reasons for rejection if applicable.

3. A test organization may apply to the custodian for accreditation changes such as testing for additional implementations, profiles, or capabilities.

5.3. COMPLIANCE TEST AND EVALUATION

AEDP-7085 test, evaluation, and certification is intended to provide a comprehensive assessment of data link terminal compliance with the requirements of the applicable AEDP-7085 Implementation and the specific requirements of the profile(s) for which the terminal is to be certified. The test process does not include assessment or verification of data collection, formatting, exploitation, dissemination, or terminal parameters such as range, transmitter power, receiver sensitivity or antenna characteristics. Candidate data link terminals are examined in a controlled environment by accredited test organizations against specific test criteria using test methods identified in this document.

5.3.1. Terminal Certification Process

The process for obtaining AEDP-7085 certification of a terminal is illustrated in Figure 5-1. A simplified sequence of events is:

a. Once the test sponsor is confident that the terminal is ready for compliance testing (e.g. by design and document reviews and testing), the test sponsor submits a request for compliance test to an accredited test organization.

b. The test organization and sponsor agree to the terms of the test including the characteristics to be tested, test procedures, and the resources required (costs, personnel, schedules, location, equipment, interface adaptation units, cables, connectors, documentation, etc.).

c. The test sponsor submits the terminal to be tested and provides appropriate supporting documentation and resources to the test organization.

d. The test organization conducts the test in accordance with the agreed criteria and procedures.

e. The test organization prepares a test report and provides a copy to the test sponsor. In cases where the terminal has deficiencies, the test sponsor and test organization may coordinate the corrections and retest as necessary.

f. The test organization provides a certification recommendation to the custodian and test sponsor if the test was successful.
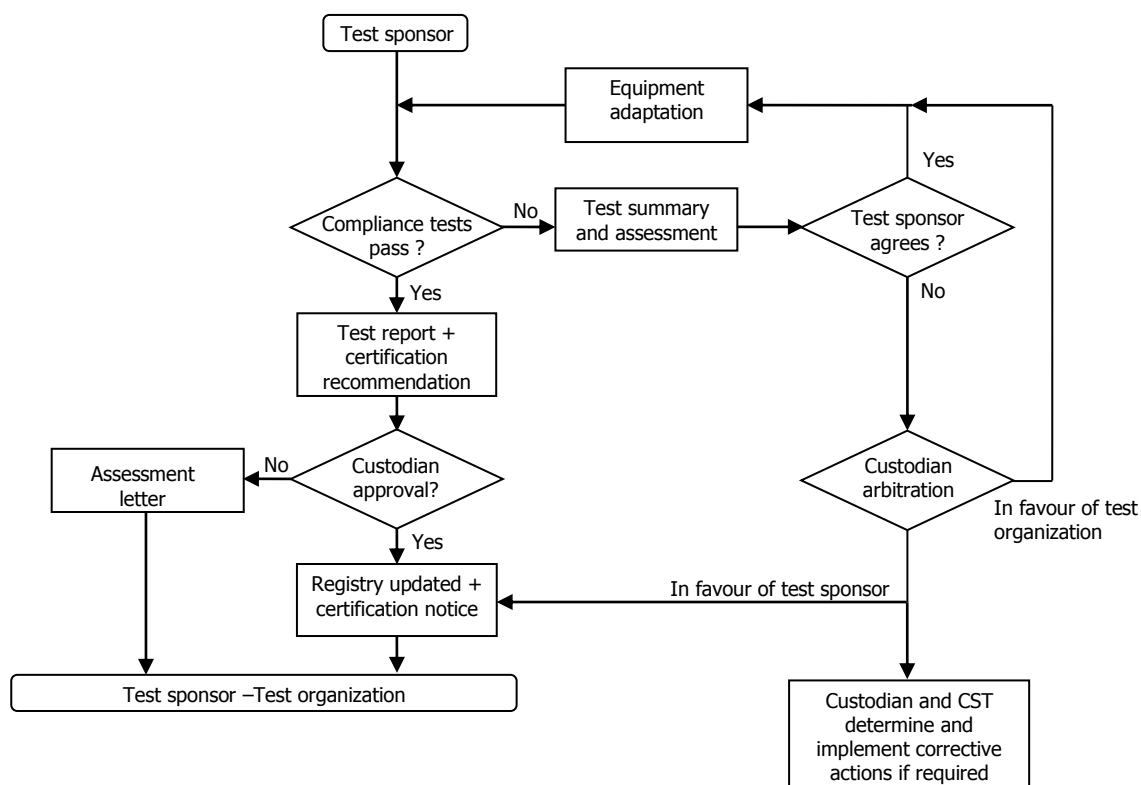
Figure 5-1. Compliance Test and Certification Process

5.3.2. AEDP-7085 Test Methodology

Evaluation methods include:

a.   Inspection (I).   Verification that a requirement has been met by observation of overt characteristics (such as mechanical orientation, presence of a feature, or colour) or by measurement of a physical property (such as length or weight).

b.   Test (T).   Verification that a requirement has been met by means of quantitative measurement with standard or specialized external test equipment under the required operating conditions.

c.   Demonstration (D).   Verification that a requirement has been met by satisfactory demonstration of the required characteristic when operating with a AEDP-7085-certified terminal or a test set, or by observation of a higher-level test.

d.   Analysis (A).   Verification that a requirement is met by analyzing the contributing subsystem tolerances, ranges, or limits and the allocation of such components among the subsystem in such a manner that meeting the requirement is assured.   Analysis may be derived from simulations, equations, charts, graphs, statistical data and/or test data.

e.   Not Applicable (N).   No verifiable requirement exists.   Tests are not applicable to this characteristic.

5.3.3. Traceability of Test Results

Where possible, test results will be traceable to an internationally recognized reference standard or a reference standard agreed by the custodian.

5.3.4. Reporting Test Results

Results of compliance testing will be documented in a test report to be maintained by the test organization.   If problems are identified during testing that would preclude certification of the terminal, the test organization will provide the test sponsor a test summary along with an assessment of the problems discovered during testing and recommendations for corrective action.   If the terminal successfully passes testing, the test organization will provide the custodian with a copy of the test summary along with a certification recommendation.   Test summaries and certification recommendations shall be submitted in English.   The test summary will include:

a.   Identification of the terminal under test

b.   Identification of the organization/agency conducting the test

c.   Date of test

d.   Test location

e.   Tester/data collector name, address and telephone number

f.   Description of the terminal under test

g.   Identity of the specific tests performed

h.   Identification of all test equipment used during testing

i.   Test network description

j.   System configuration diagram illustrating the interconnections between the terminal under test and the test equipment used during the test including any interface adaptation units

k. Profile(s) tested

l. Test limitations

m. Required standards and conformance

n. Summary of test results providing:

(1). Number of trials passed

(2). Number of trials failed

(3). Total number of trials

5.4. COMPLIANCE TEST REQUIREMENTS

The evaluation methods shown in Tables B-1 through B-8 are the expected methods by which to verify the individual terminal characteristics. Test organization capabilities and resources, and design of the terminal under test may require alteration of the evaluation method in specific cases. In general, the preferred hierarchy of evaluation methods is test, demonstration, and analysis, in that order.

5.4.1. Implementation 1 Test Requirements

Table 5-1. Implementation 1 Forward Link Transmitter Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N** - Not Applicable

AEDP-7085 CHARACTERISTIC	REQUIREMENT	EVALUATION METHOD
Composite Data Rate	Shall multiplex user channels, auxiliary user channels, reserved channels, and synchronization bits into a single bit stream at the composite data rate indicated in line G.2 of the profile description	D
User Data Rate	Shall provide one or more user channels providing the aggregate user data rate shown on line G.4 of the profile description	D
Case	Shall provide the transmission characteristics and layer services required by the Case identified on line G.5 of the profile description	D
Mode of Operation	Shall support the mode of operation indicated on line G.6 of the profile description	D
Link Management	Shall implement internal or external link management as indicated on line G.7 of the profile description	D and A (See Note 1)
Internal or Core Link Management Architecture	Shall format and transmit the EFC frame as prescribed by the references shown in line G.8 of the profile description	D
Ranging Function	Shall implement the 7085 ranging function (see line G.9 of the profile description for applicable references)	D
Real Time Coordinate Accuracy	Terminals employing Internal Link Management shall accept an external management data input identifying its Ground Station Identifier, and shall implement the Ground Station/Real Time Coordinate Command using Single Precision or Dual Precision as indicated on line G.10 of the profile description.	D
Network Layer Protocols	Shall implement network layer protocols and services as required by lines F.1 and F.2 of the profile description	D (Case C) or N (Cases A or B)
Data Link Layer Protocols	Shall implement data link layer protocols as required by line F.3 of the profile description	D (Cases B or C) or N (Case A)
Synchronous Channel Multiplexing		
Mode	Shall assemble the multiplex frame as required by the waveform mode indicated in line F.5 of the profile description	D
Number of User Channels	Shall insert the user channels described in lines F.6 and F.7 of the profile description into the multiplex frame	D
Data Rate per User Channel		
Number of Auxiliary User Channels	Shall insert the auxiliary user channels described in lines F.8 and F.9 of the profile description into the multiplex frame	D/A or N
Data Rate per Auxiliary User Channel		
Number of Reserved Channels	Shall insert the reserved channels described in lines F.10 and F.11 of the profile description into the multiplex frame	D
Function/Data Rate of Reserved Channels		
Randomization	Shall randomize the forward link as required for the waveform mode (see line F.13 of the profile description for applicable references)	D
Bulk Encryption		
Implemented	Shall implement the NATO approved encryption solution identified on line F.14 of the profile description. (See line F.14 of the profile description for applicable references.)	D
Not implemented	Shall use a COMSEC bypass to replace or disable the COMSEC apparatus (if present)	D

Table 5-1. Implementation 1 Forward Link Transmitter Test Requirements

Evaluation Legend:	I - Inspection	T - Test	D – Demonstration	A – Analysis	N - Not Applicable
AEDP-7085 CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Outer or only FEC code	Shall provide FEC encoding using the method and parameters indicated in line F.15 of the profile description				D
Inner FEC Code	Shall provide FEC encoding using the method and parameters indicated in line F.16 of the profile description				D or N
Interleaving	Shall interleave the encoded data symbols as required by line F.17 of the profile description				D
Spreading	Shall spread the forward link as indicated in line F.18 of the profile description				D or N
Differential encoding	Shall employ differential encoding as identified in line F.19 of the profile description				D or N
Mapping Scheme	Shall use the mapping scheme indicated in line F.20 of the profile description (See section 4.7 for a description of mapping schemes)				D
Modulation Type	Shall modulate the forward link as identified in line F.21 of the profile description.				D
Carrier Frequencies	Shall operate at all carrier frequencies defined by the lowest and highest carrier frequencies shown in line F.23 and the tuning increment identified in line F.24 of the profile description				T
Occupied Bandwidth	The occupied bandwidth of the forward link signal shall not exceed the value indicated in line F.25 of the profile description				T or A
Allocated Bandwidth	The allocated bandwidth of the forward link signal shall not exceed the value indicated in line F.26 of the profile description				T
Spectral Mask	Shall comply with the requirement indicated in line F.27 of the profile description.				T
Frequency Uncertainty	For each measured carrier frequency, Shall be within the required uncertainty ± value shown in line F.28 of the profile description less the value shown for Maximum Doppler Shift in line F.29 of the profile description.				T
CDL SPECIFICATION CHARACTERISTIC (SEE REF 3.)	**REQUIREMENTS**				**EVALUATION METHOD**
Phase Imbalance	Shall not exceed the required value (see Ref 3 for specific waveform requirement)				A
Amplitude Imbalance	Shall be 0.5dB maximum				A

Table 5-2. Implementation 1 Return Link Receiver Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N** - Not Applicable

AEDP-7085 CHARACTERISTIC	REQUIREMENT	EVALUATION METHOD
Composite Data Rate	Shall receive data at the composite bit rate indicated in line G.1 of the profile description and demultiplex the aggregate bit stream as required by the waveform mode indicated in line R.5 of the profile description	D
User Data Rate	Shall provide one or more user channels providing the aggregate user data rate shown on line G.3 of the profile description	D
Case	Shall provide the receiver characteristics and layer services required by the Case identified on line G.5 of the profile description	D
Mode of Operation	Shall support the mode of operation indicated on line G.6 of the profile description	D
Link Management	Shall implement internal or external link management as indicated on line G.7 of the profile description	D and A (See Note 1)
Internal or Core Link Management Architecture	Shall receive and process the EFD frame as prescribed by the references shown in line G.8 of the profile description	D
Ranging Function	Shall implement the 7085 ranging function (see line G.9 of the profile description for applicable references)	D
Real Time Coordinate Accuracy		N
Network Layer Protocols	Shall implement network layer protocols and services as required by lines R.1 and R.2 of the profile description	D (Case C) or N (Cases A or B)
Data Link Layer Protocols	Shall implement data link layer protocols as required by line R.3 of the profile description	D (Cases B or C) Or N (Case A)
Synchronous Channel De-Multiplexing		
Mode	Shall disassemble the multiplex frame as required by the waveform mode indicated in line R.5 of the profile description	D
Number of User Channels	Shall extract the user channels described in lines R.6 and R.7 of the profile description from the multiplex frame	D
Data Rate per User Channel		
Number of Auxiliary User Channels	Demultiplexer shall recognize and account for the presence of Auxiliary User Channel bits as described in lines R.8 and R.9 of the profile description	D/A or N
Data Rate per Auxiliary User Channel		
Number of Reserved Channels	Shall extract the reserved channels described in lines R.10 and R.11 of the profile description from the multiplex frame	D
Function/Data Rate of Reserved Channels		
Demodulation	Shall demodulate the return link from an RF signal modulated as required by line R.21 of the profile description	D
De-Spreading	De-spread a return link signal that has been spread as indicated on line R.18 of the profile description	D or N
De-Randomization	Shall de-randomize a return link signal that has been randomized as indicated in line R.13 of the profile description	D
Decryption		
Implemented	Shall implement the NATO approved decryption solution identified on line R.14 of the profile Description to decrypt the encrypted return link. (See line R.14 of the profile description for applicable references)	D
Not Implemented	Shall use a COMSEC bypass to replace or disable the COMSEC apparatus (if present)	D

Table 5-2. Implementation 1 Return Link Receiver Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N** - Not Applicable
AEDP-7085 CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
FEC Decoding	Shall decode a received return link symbol stream that has been encoded using the method and parameters indicated in line R.15 of the profile description				D
De-Interleaving	Shall de-interleave the encoded data symbols in a return link signal that has been interleaved as required by line R.17 of the profile description				D
Differential Decoding	Shall decode a return link signal that has been the differentially encoded as identified in line R.19 of the profile description				D or N
Mapping Scheme	Shall use the mapping scheme indicated in line R.20 of the profile description (See section 4.7 for a description of mapping schemes)				D
Carrier Frequencies	Shall operate at all carrier frequencies defined by the lowest and highest carrier frequencies shown in line R.23 and the tuning increment identified in line R.24 of the profile description				T
Frequency Uncertainty Including Doppler	Shall operate within frequency uncertainty ± value shown in line R.28 of the profile description for each measured carrier frequency				T
Maximum Doppler Shift	Shall operate within the maximum Doppler shift ± value shown in line R.29 of the profile description for each measured carrier frequency				T
CDL SPECIFICATION CHARACTERISTIC (SEE REFERENCE 3.)	**REQUIREMENTS**				**EVALUATION METHOD**
Bit Error Ratio					
Unencrypted	Shall maintain a BER of $1X10^{-8}$ or less				T
Encrypted	Shall maintain a BER of $1X10^{-6}$ or less				T

Table 5-3. Implementation 1 Return Link Transmitter Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N -** Not Applicable

AEDP-7085 CHARACTERISTIC	REQUIREMENT	EVALUATION METHOD
Composite Data Rate	Shall multiplex user channels, auxiliary user channels, reserved channels, and synchronization bits into a single bit stream at the composite data rate indicated in line G.1 of the profile description	D
User Data Rate	Shall provide one or more user channels providing the aggregate user data rate shown on line G.3 of the profile description	D
Case	Shall provide the transmission characteristics and layer services required by the Case identified on line G.5 of the profile description	D
Mode of Operation	Shall support the mode of operation indicated on line G.6 of the profile description	D
Link Management	Shall implement internal or external link management as indicated on line G.7 of the profile description	D and A (See Note 1)
Internal or Core Link Management Architecture	Shall format and transmit the EFD frame as prescribed by the references shown in line G.8 of the profile description	D
Ranging Function	Shall implement the 7085 ranging function (see line G.9 of the profile description for applicable references)	D
Real Time Coordinate Accuracy		N
Network Layer Protocols	Shall implement network layer protocols and services as required by lines R.1 and R.2 of the profile description	D (Case C) or N (Cases A or B)
Data Link Layer Protocols	Shall implement data link layer protocols as required by line R.3 of the profile description	D (Cases B or C) or N (Case A)
Synchronous Channel Multiplexing		
Mode	Shall assemble the multiplex frame as required by the waveform mode indicated in line R.5 of the profile description	D
Number of User Channels	Shall insert the user channels described in lines R.6 and R.7 of the profile description into the multiplex frame	D
Data Rate per User Channel		
Number of Auxiliary User Channels	Shall insert the auxiliary user channels described in lines R.8 and R.9 of the profile description into the multiplex frame	D/A or N
Data Rate per Auxiliary User Channel		
Number of Reserved Channels	Shall insert the reserved channels described in lines R.10 and R.11 of the profile description into the multiplex frame	D
Function/Data Rate of Reserved Channels		
Randomization	Shall randomize the return link as required for the waveform mode (see line R.13 of the profile description for applicable references)	D
Bulk Encryption		
Implemented	Shall implement the NATO approved encryption solution identified on line R.14 of the profile description.	D
Not implemented	Shall use a COMSEC bypass to replace or disable the COMSEC apparatus (if present)	D
Outer or only FEC code	Shall provide FEC encoding using the method and parameters indicated in line R.15 of the profile description	D
Inner FEC Code	Shall provide FEC encoding using the method and parameters indicated in line R.16 of the profile description	D or N

Table 5-3. Implementation 1 Return Link Transmitter Test Requirements

Evaluation Legend:	I - Inspection	T - Test	D – Demonstration	A – Analysis	N - Not Applicable
AEDP-7085 CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Interleaving	Shall interleave the encoded data symbols as required by line R.17 of the profile description				D
Spreading	Shall spread the return link as indicated in line R.18 of the profile description				D or N
Differential encoding	Shall employ differential encoding as identified in line R.19 of the profile description				D or N
Mapping Scheme	Shall use the mapping scheme indicated in line R.20 of the profile description (See section 4.7 for a description of mapping schemes)				D
Modulation Type	Shall modulate the return link as identified in line R.21 of the profile description.				D
Carrier Frequencies	Shall operate at all carrier frequencies defined by the lowest and highest carrier frequencies shown in line R.23 and the tuning increment identified in line R.24 of the profile description				T
Occupied Bandwidth	The occupied bandwidth of the return link signal shall not exceed the value indicated in line R.25 of the profile description				T or A
Allocated Bandwidth	The allocated bandwidth of the return link signal shall not exceed the value indicated in line R.26 of the profile description				T
Spectral Mask	Shall comply with the requirement indicated in line R.27 of the profile description.				T
Frequency Uncertainty	For each measured carrier frequency, Shall be within the required uncertainty ± value shown in line R.28 of the profile description less the value shown for Maximum Doppler Shift in line R.29 of the profile description.				T
CDL SPECIFICATION CHARACTERISTIC (SEE REFERENCE 3)	**REQUIREMENT**				**EVALUATION METHOD**
Phase Imbalance	Shall not exceed the required value (see Ref 3 for specific waveform requirement)				A
Amplitude Imbalance	Shall be 0.5dB maximum				A

Table 5-4. Implementation 1 Forward Link Receiver Test Requirements

Evaluation Legend:	I - Inspection	T - Test	D – Demonstration	A – Analysis	N - Not Applicable

AEDP-7085 CHARACTERISTIC	REQUIREMENT	EVALUATION METHOD
Composite Data Rate	Shall receive data at the composite bit rate indicated in line G.2 of the profile description and demultiplex the aggregate bit stream as required by the waveform mode indicated in line F5 of the profile description	D
User Data Rate	Shall provide one or more user channels providing the aggregate user data rate shown on line G.4 of the profile description	D
Case	Shall provide the receiver characteristics and layer services required by the Case identified on line G.5 of the profile description	D
Mode of Operation	Shall support the mode of operation indicated on line G.6 of the profile description	D
Link Management	Shall implement internal or external link management as indicated on line G.7 of the profile description	D and A (See Note 1)
Internal or Core Link Management Architecture	Shall receive and process the EFC frame as prescribed by the references shown in line G.8 of the profile description	D
Ranging Function	Shall implement the 7085 ranging function (see line G.9 of the profile description for applicable references)	D
Real Time Coordinate Accuracy	Terminals employing internal link management shall accept an external management data input identifying the Active Ground Station Identifier, and shall correctly interpret the Ground Station/Real Time Coordinate Command using Single Precision or Dual Precision as indicated on line G.10 of the profile description	D
Network Layer Protocols	Shall implement network layer protocols and services as required by lines F.1 and F.2 of the profile description	D (Case C) or N (Cases A or B)
Data Link Layer Protocols	Shall implement data link layer protocols as required by line F.3 of the profile description	D (Cases B or C) or N (Case A)
Synchronous Channel De-Multiplexing		
Mode	Shall disassemble the multiplex frame as required by the waveform mode indicated in line F.5 of the profile description	D
Number of User Channels	Shall extract the user channels described in lines F.6 and F.7 of the profile description from the multiplex frame	D
Data Rate per User Channel		
Number of Auxiliary User Channels	Demultiplexer shall recognize and account for the presence of Auxiliary User Channel bits as described in lines F.8 and F.9 of the profile description	D/A or N
Data Rate per Auxiliary User Channel		
Number of Reserved Channels	Shall extract the reserved channels described in lines F.10 and F.11 of the profile description from the multiplex frame	D
Function/Data Rate of Reserved Channels		
Demodulation	Shall demodulate the forward link from an RF signal modulated as required by line F.21 of the profile description	D
De-Spreading	De-spread a forward link signal that has been spread as indicated on line F.18 of the profile description	D or N
De-Randomization	Shall de-randomize a forward link signal that has been randomized as indicated in line F.13 of the profile description	D
Decryption		
Implemented	Shall implement the NATO approved decryption solution identified on line F.14 of the profile description to decrypt the encrypted return link. (See line F.14 of the profile description for applicable references)	D

Table 5-4. Implementation 1 Forward Link Receiver Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N -** Not Applicable
AEDP-7085 CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Not Implemented	Shall use a COMSEC bypass to replace or disable the COMSEC apparatus (if present)				D
FEC Decoding	Shall decode a received return link symbol stream that has been encoded using the method and parameters indicated in line F.15 of the profile description				D
De-Interleaving	Shall de-interleave the encoded data symbols in a forward link signal that has been interleaved as required by line F.17 of the profile description				D
Differential Decoding	Shall decode a forward link signal that has been the differentially encoded as identified in line F.19 of the profile description				D or N
Mapping Scheme	Shall use the mapping scheme indicated in line F.20 of the profile description (See section 4.7 for a description of mapping schemes)				D
Carrier Frequencies	Shall operate at all carrier frequencies defined by the lowest and highest carrier frequencies shown in line F.23 and the tuning increment identified in line F.24 of the profile description				T
Frequency uncertainty including Doppler	Shall operate within frequency uncertainty ± value shown in line F.28 of the profile description for each measured carrier frequency				T
Maximum Doppler shift	Shall operate within the maximum Doppler shift ± value shown in line F.29 of the profile description for each measured carrier frequency				T
CDL SPECIFICATION CHARACTERISTIC (SEE REFERENCE 3.)	**REQUIREMENTS**				**EVALUATION METHOD**
Bit Error Ratio					
Unencrypted	Shall maintain a BER of $1X10^{-8}$ or less				T
Encrypted	Shall maintain a BER of $1X10^{-6}$ or less				T

5.4.2. Implementation 2 Test Requirements

Table 5-5. Implementation 2 Forward Link Transmitter Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N** - Not Applicable

AEDP-7085 CHARACTERISTICS	REQUIREMENTS	EVALUATION METHOD
Composite Data Rate	Shall pass data at the composite data rate specified in row G.2 of the profile description	D
User Data Rate	Shall accept an unformatted bit stream at the data rate specified in row G.4 of the profile description	D
Case	Shall provide the transmission characteristics and layer services required by the Case identified on line G.5 of the profile description	D
Mode of Operation	Shall support the mode of operation indicated on line G.6 of the profile description	D
Link Management	Shall implement external link management as indicated on line G.7 of the profile description	D and A (See Note 1)
Internal or Core Link Management Architecture		N
Ranging Function	Shall implement ranging function according to line G.9 of the profile description	N
Real Time Coordinate Accuracy		N
Network Layer Protocols	Shall implement network layer protocols and services as required by lines F.1 and F.2 of the profile description	D (Case C) or N (Cases A or B)
Data Link Layer Protocols	Shall implement data link layer protocols as required by line F.3 of the profile description	D (Cases B or C) or N (Case A)
Transport Mux Adaptation	Shall implement transport mux adaptation as required by line F.12 of the profile description	N
Randomization	Shall randomize the forward link as indicated in line F.13 of the profile description	D
Bulk Encryption		
Implemented	Shall implement the NATO approved encryption solution identified on line F.14 of the profile description. (See line F.14 of the profile description for applicable references)	D
Not implemented	Shall use a COMSEC bypass to replace or disable the COMSEC apparatus (if present)	D
Outer or only FEC code	Shall provide FEC encoding using the method and parameters indicated in line F.15 of the profile description	D
Inner FEC Code	Shall provide FEC encoding using the method and parameters indicated in line F.16 of the profile description	D or N
Interleaving	Shall interleave the encoded data symbols as required by line F.17 of the profile description	D
Spreading	Shall spread the forward link as indicated in line F.18 of the profile description	D or N
Differential encoding	Shall employ differential encoding as identified in line F.19 of the profile description	D
Mapping Scheme	Shall use the mapping scheme indicated in line F.20 of the profile description (See section 4.7 for a description of mapping schemes)	D
Modulation Type	Shall modulate the forward link as identified in line F.21 of the profile description.	D
Carrier Frequencies	Shall operate at all carrier frequencies defined by the lowest and highest carrier frequencies shown in line F.23 and the tuning increment identified in line F.24 of the profile description	T

Table 5-5. Implementation 2 Forward Link Transmitter Test Requirements

Evaluation Legend:	I - Inspection	T - Test	D – Demonstration	A – Analysis	N - Not Applicable
AEDP-7085 CHARACTERISTICS	**REQUIREMENTS**				**EVALUATION METHOD**
Occupied Bandwidth	The occupied bandwidth output shall not exceed the value indicated in line F.25 of the profile description				T or A or N
Allocated Bandwidth	The allocated bandwidth of the forward link signal shall not exceed the value indicated in line F.26 of the profile description				T
Spectral Mask	Shall comply with the requirement indicated in line F.27 of the profile description.				T
Frequency Uncertainty	For each measured carrier frequency, Shall be within the required uncertainty ± value shown in line F.28 of the profile description less the value shown for Maximum Doppler Shift in line F.29 of the profile description.				T
DSDL SPECIFICATION CHARACTERISTIC	**REQUIREMENTS**				**EVALUATION METHOD**
None					

Table 5-6. Implementation 2 Return Link Receiver Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N -** Not Applicable
AEDP-7085 CHARACTERISTIC		**REQUIREMENT**			**EVALUATION METHOD**
Composite Data Rate		Shall receive the signal transmitted by a return link transmitter at the composite data rate shown on line G.1 of the profile description and outputs an unformatted bit stream.			D
User Data Rate		Shall provide an unformatted bit stream at the User Data Rate shown on line G.3 of the profile description.			D
Case		Shall provide the receiver characteristics and layer services required by the Case identified on line G.5 of the profile description			D
Mode of Operation		Shall support the mode of operation indicated on line G.6 of the profile description			D
Link Management		Shall implement external link management as indicated on line G.7 of the profile description			D and A (See Note 1)
Internal or Core Link Management Architecture					N
Ranging Function		Shall implement ranging function according to line G.9 of the profile description			N
Real Time Coordinate Accuracy					N
Network Layer Protocols		Shall implement network layer protocols and services as required by lines R.1 and R.2 of the profile description			D (Case C) or N (Cases A or B)
Data Link Layer Protocols		Shall implement data link layer protocols as required by line R.3 of the profile description			D (Cases B or C) or N (Case A)
Transport Mux Adaptation		Shall implement transport mux adaptation as required by line R.12 of the profile description			D
Demodulation		Shall demodulate the return link from an RF signal modulated as required by line R.21 of the profile description			T
De-Spreading		De-spread a return link signal that has been spread as indicated on line R.18 of the profile description			N
De-Randomization		Shall de-randomize a return link signal that has been randomized as indicated in line R.13 of the profile description			D
Decryption					
Implemented		Shall implement the NATO approved decryption solution identified on line R.14 of the profile description to decrypt the encrypted return link. (See line R.14 of the profile description for applicable references)			D
Not Implemented		Shall use a COMSEC bypass to replace or disable the COMSEC apparatus (if present)			D
FEC Decoding		Shall decode a received return link symbol stream that has been encoded using the method and parameters indicated in lines R.15 and R.16 of the profile description			D
De-Interleaving		Shall de-interleave the encoded data symbols in a return link signal that has been interleaved as required by line R.17 of the profile description			D
Differential Decoding					N
Mapping Scheme		Shall use the mapping scheme indicated in line R.20 of the profile description (See section 4.7 for a description of mapping schemes)			D
Carrier Frequencies		Shall operate at all carrier frequencies defined by the lowest and highest carrier frequencies shown in line R.23 and the tuning increment identified in line R.24 of the profile description			T
Frequency uncertainty including Doppler		Shall operate within the frequency uncertainty ± value shown in line R.28 of the profile description for each measured carrier frequency			T

Table 5-6. Implementation 2 Return Link Receiver Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N** - Not Applicable
AEDP-7085 CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Maximum Doppler shift	Shall operate within the maximum Doppler shift ± value shown in line R.29 of the profile description for each measured carrier frequency				T
DSDL SPECIFICATION CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Bit Error Ratio					
Unencrypted	Shall maintain a BER of 1×10^{-8} or less				T
Encrypted	Shall maintain a BER of 1×10^{-6} or less				T

Table 5-7. Implementation 2 Return Link Transmitter Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N -** Not Applicable
AEDP-7085 CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Composite Data Rate	Shall pass data at the composite data rate specified in row G.1 of the profile description				D
User Data Rate	Shall accept an unformatted bit stream at the data rate specified in row G.3 of the profile description				D
Case	Shall provide the transmission characteristics and layer services required by the Case identified on line G.5 of the profile description				D
Mode of Operation	Shall support the mode of operation indicated on line G.6 of the profile description				D
Link Management	Shall implement external link management as indicated on line G.7 of the profile description				D and A (See Note 1)
Internal or Core Link Management Architecture					N
Ranging Function	Shall implement ranging function according to line G.9 of the profile description				N
Real Time Coordinate Accuracy					N
Network Layer Protocols	Shall implement network layer protocols and services as required by lines R.1 and R.2 of the profile description				D (Case C) or N (Cases A or B)
Data Link Layer Protocols	Shall implement data link layer protocols as required by line R.3 of the profile description				D (Cases B or C) or N (Case A)
Transport Mux Adaptation	Shall implement transport mux adaptation as required by line R.12 of the profile description				D
Randomization	Shall randomize the return link as indicated in line R.13 of the profile description				D
Bulk Encryption					
Implemented	Shall implement the NATO approved encryption solution identified on line R.14 of the profile description. (See line R.14 of the profile description for applicable references)				D
Not implemented	Shall use a COMSEC bypass to replace or disable the COMSEC apparatus (if present)				D
Outer or only FEC code	Shall provide FEC encoding using the method and parameters indicated in line R.15 of the profile description				D
Inner FEC Code	Shall provide FEC encoding using the method and parameters indicated in line R.16 of the profile description				D
Interleaving	Shall interleave the encoded data symbols as required by line R.17 of the profile description				D
Spreading					N
Differential encoding					N
Mapping Scheme	Shall use the mapping scheme indicated in line R.20 of the profile description (See section 4.7 for a description of mapping schemes)				D
Modulation Type	Shall modulate the return link as identified in line R.21 of the profile description.				T
Carrier Frequencies	Shall operate at all carrier frequencies defined by the lowest and highest carrier frequencies shown in line R.23 and the tuning increment identified in line R.24 of the profile description				T

Table 5-7. Implementation 2 Return Link Transmitter Test Requirements

Evaluation Legend:	I - Inspection	T - Test	D – Demonstration	A – Analysis	N - Not Applicable
AEDP-7085 CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Occupied Bandwidth	The occupied bandwidth of the return link signal shall not exceed the value indicated in line R.25 of the profile description				T or A
Allocated Bandwidth	The allocated bandwidth of the return link signal shall not exceed the value indicated in line R.26 of the profile description				T
Spectral Mask	Shall comply with the requirement indicated in line R.27 of the profile description.				T
Frequency Uncertainty	For each measured carrier frequency, Shall be within the required uncertainty ± value shown in line R.28 of the profile description less the value shown for Maximum Doppler Shift in line R.29 of the profile description.				T
DSDL SPECIFICATION CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
None					

Table 5-8. Implementation 2 Forward Link Receiver Test Requirements

Evaluation Legend:	I - Inspection	T - Test	D – Demonstration	A – Analysis	N - Not Applicable

AEDP-7085 CHARACTERISTIC	REQUIREMENT	EVALUATION METHOD
Composite Data Rate	Shall receive the signal transmitted by a forward link transmitter at the composite data rate shown on lineG.2 of the profile description and outputs an unformatted bit stream.	D
User Data Rate	Shall output an unformatted bit stream at the User Data Rate shown on line G.4 of the profile description.	D
Case	Shall provide the receiver characteristics and layer services required by the Case identified on line G.5 of the profile description	D
Mode of Operation	Shall support the mode of operation indicated on line G.6 of the profile description	D
Link Management	Shall implement external link management as indicated on line G.7 of the profile description	D and A (See Note 1)
Internal or Core Link Management Architecture		N
Ranging Function	Shall implement ranging function according to line G.9 of the profile description	N
Real Time Coordinate Accuracy		N
Network Layer Protocols	Shall implement network layer protocols and services as required by lines F.1 and F.2 of the profile description	D (Case C) or N (Cases A or B)
Data Link Layer Protocols	Shall implement data link layer protocols as required by line F.3 of the profile description	D (Cases B or C) or N (Case A)
Transport Mux Adaptation	Shall implement transport mux adaptation as required by line F.12 of the profile description	N
Demodulation	Shall demodulate the forward link from an RF signal modulated as required by line F.21 of the profile description	T
De-Spreading	De-spread a forward link signal that has been spread as indicated on line F.18 of the profile description	D or N
De-Randomization	Shall de-randomize a return link signal that has been randomized as indicated in line F.13 of the profile description	D
Decryption		
Implemented	Shall implement the NATO approved decryption solution identified on line F.14 of the profile description to decrypt the encrypted return link. (See line F.14 of the profile description for applicable references)	D
Not Implemented	Shall use a COMSEC bypass to replace or disable the COMSEC apparatus (if present)	D
FEC Decoding	Shall decode a received return link symbol stream that has been encoded using the method and parameters indicated in lines F.15 and F.16 of the profile description	D
De-Interleaving	Shall de-interleave the encoded data symbols in a return link signal that has been interleaved as required by line F.17 of the profile description	D
Differential Decoding	Shall decode a forward link signal that has been the differentially encoded as identified in line F.19 of the profile description	D
Mapping Scheme	Shall use the mapping scheme indicated in line F.20 of the profile description (See section 4.7 for a description of mapping schemes)	D
Carrier Frequencies	Shall operate at all carrier frequencies defined by the lowest and highest carrier frequencies shown in line F.23 and the tuning increment identified in line F.24 of the profile description	T
Frequency uncertainty including Doppler	Shall operate within frequency uncertainty ± value shown in line F.28 of the profile description for each measured carrier frequency	T

Table 5-8. Implementation 2 Forward Link Receiver Test Requirements

Evaluation Legend:	**I** - Inspection	**T** - Test	**D** – Demonstration	**A** – Analysis	**N -** Not Applicable
AEDP-7085 CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Maximum Doppler shift	Shall operate within the maximum Doppler shift ± value shown in line F.29 of the profile description for each measured carrier frequency				T
DSDL SPECIFICATION CHARACTERISTIC	**REQUIREMENT**				**EVALUATION METHOD**
Bit Error Ratio					
Unencrypted	Shall maintain a BER of $1X10^{-8}$ or less				T
Encrypted	Shall maintain a BER of $1X10^{-6}$ or less				T

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CHAPTER 6   CONFIGURATION MANAGEMENT PLAN FOR AEDP-7085

6.1. INTRODUCTION

6.1.1. Purpose

The purpose of this document is to provide the framework for the management of AEDP-7085 and all associated documents. Documents included in this configuration management structure are:

    a.   AEDP-7085, Interoperable Data Links for ISR Systems

    b.   AEDP-7085.1, AEDP-7085 Implementation Guide

6.1.2. SCOPE

This document provides the framework for configuration management of AEDP-7085 and all associated documents. Participating NATO member nations define their respective levels of participation and all NATO member nations have equal opportunity to have their respective positions voiced in the AEDP-7085 community. Decisions made within this framework are subject to final approval of NATO Air Forces Armament Group (NAFAG) Joint Capabilities Group on Intelligence Surveillance and Reconnaissance (JCGISR), in order to ensure the proper placement of AEDP-7085 within the overall NATO Intelligence, Surveillance, and Reconnaissance (ISR) Interoperability Architecture (NIIA). The configuration management structure outlined in this document is compatible with the NATO guidelines defined in AAP-03(J), Procedures for the Development, Preparation, Production, and the Updating of NATO Standardization Agreements (STANAGs) and Allied Publications (APs).

6.2. REFERENCED DOCUMENTS

1.   AAP-03(I), *Procedures for the Development, Preparation, Production, and the Updating of NATO Standardization Agreements (STANAGs) and Allied Publications (APs)*

2.   AEDP-2, *NATO Intelligence, Surveillance, and Reconnaissance (ISR) Interoperability Architecture (NIIA), Volume 2, Edition 1*

6.3. AEDP-MANAGEMENT ORGANIZATION

1.   **NAFAG Joint Capabilities Group on Intelligence Surveillance and Reconnaissance (JCGISR)**. JCGISR will:

    a.   Appoint a custodian for STANAG 7085

b. Resolve conflicts between Nations on the disposition of proposed changes to AEDP-7085 when conflicts can not be resolved by the custodian and the national POCs.

c. Assess all proposed amendments or new editions of AEDP-7085 to determine the impact of included changes on other STANAGs for which JCGISR is responsible.

d. Approve amendments or new additions to AEDP-7085 prior to forwarding them to the nations for ratification or to the Director NSO for promulgation.

2. **Custodian.** The STANAG 7085 custodian is responsible to JCGISR for development of AEDP-7085, overall management of any standards validation testing activities required to assure the syntactical correctness and unambiguous interpretation of AEDP-7085 requirements, and configuration management of AEDP-7085 and related publications. The custodian is the only individual to receive tasking from and report to JCGISR on AEDP-7085. This authority can be delegated to other members of the AEDP-7085 community, but responsibility for the tasking and reporting resides with the custodian. Specific duties include, but are not limited to:

a. Maintains a list of the national POCs and provides the list to the JCGISR Secretary for publication on the JCGISR web site.

b. Maintains a list of points of contact in organizations /agencies responsible for implementing AEDP-7085 in national systems.

c. Receives proposed changes to AEDP-7085 from national POCs.

d. Tracks proposed changes and maintains current status of each proposed change until final disposition.

e. Reviews proposed changes to determine if the proposed changes are substantive or editorial and determines if validation testing of the proposed change will be required.

f. Determines if the circumstances of a proposed substantive change dictate the use of "Fast Track" processing.

g. Determines the disposition of proposed editorial changes.

h. Forwards a copy of each substantive proposed change to national POCs (and implementation POCs when appropriate) for review and recommendations.

    i. Calls for and presides over meetings of national POCs and STANAG 7085 Custodian Support Team (CST) when required.

    j. Coordinates with the custodians of other STANAGs sponsored by JCGISR.

    k. Provides AEDP amendments or new editions to JCGISR for approval.

    l. Reports to JCGISR on status of AEDP-7085 and proposed changes.

3.   **STANAG 7085 National Point of Contact (POC)**. Each NATO member nation's JCGISR representative can appoint a national POC for STANAG 7085 by providing the name, organization, address, telephone and fax numbers, and electronic mail address of their 7085 POC to the STANAG 7085 custodian. The national POC for STANAG 7085 can be from government or industry as chosen by the JCGISR representative. The national POC for STANAG 7085 is the official spokesman for all interested individuals or organizations from that nation. The authority of the national POC can be delegated to another individual from that nation if the POC is temporarily unable to function. The delegation shall be in writing to the custodian. The substitute shall have all authority and responsibility of the regular national POC. Specific duties of the national POCs include, but are not limited to:

    a. Review and evaluate proposed changes to AEDP-7085 or supporting documents submitted by interested parties within their respective nations.

    b. Forward proposed changes and recommendations for "Fast Track" processing to the custodian for action.

    c. Establish procedures for developing their respective national position on proposed changes to AEDP-7085. These procedures can use whatever process is appropriate to that nation, but ultimately the national representative will voice the official national position to the 7085 custodian.

    d. Determine if implementing organizations/agencies within their respective Nations will participate in "Fast Track" processing of substantive changes to AEDP-7085, and will identify implementation POCs to the custodian.

    e. Distribute proposed changes received from the custodian to interested persons or organizations within their nation and report their nation's position on proposed changes to the custodian.

    f. Represent their nation at meetings of the national POCs when such meetings are called by the custodian.

4.   **NATO JCGISR Secretary.**   The JCGISR Secretary is responsible for maintaining   the   JCGISR   web   page (https://diweb.hq.nato.int/nafag/jcgisr/asiisg/stanag_7085/Pages/default.aspx)   on which STANAG 7085 information is posted.   The JCGISR Secretary will support AEDP-7085 configuration management by:

   a.   Distribute amendments or new editions containing substantive changes to the Nations for ratification in accordance with AAP-3.

   b.   Submit ratified amendments or new editions of the AEDP-7085 or amendments or new editions containing only editorial changes to the Director NSO for promulgation.

6.4.   CHANGE MANAGEMENT

Two processes are employed for management of changes to AEDP-7085.   Both processes are illustrated in Figure 6-1.   Urgent changes are processed using the "Fast Track" process illustrated in the left column of Figure 6-1.   Routine changes are processed as illustrated in the right column of Figure 6-1.

   a.   Any interested individual or organization may submit a request to change the content or structure of AEDP-7085 at any time.   Individuals or organizations from nations that have identified a national POC for STANAG 7085 will submit proposed changes to their national POC. Individuals or organizations from NATO nations that have not identified a national POC for STANAG 7085 will submit proposed changes to their nation's JCGISR representative.

   b.   National POCs will evaluate proposed changes.   If the national POC endorses the proposed change, the national POC forwards the proposed change to the custodian. If the national POC does not endorse the proposed change, the national POC returns the proposed change to the originator.

   c.   Change requests shall be submitted in English and shall contain the information reflected in article A005 herein and may be submitted to the custodian via mail, electronic mail, or fax.   Changes submitted as a result of ambiguities or problems discovered during implementation of AEDP-7085 must provide a proposed solution to the problem encountered.

   d.   The custodian logs the change into the configuration management system, acknowledges receipt of the change, and reviews the proposed change to determine if the change is substantive or editorial.   Any

change that would modify the required characteristics of the data link is considered a change of substance.

e.   If the proposed change is editorial, the custodian will determine the appropriate disposition of the change without input from the national POCs.   Approved changes will be incorporated into the next forthcoming amendment or edition of AEDP-7085.

f.   If the proposed change is substantive, the custodian determines if the circumstances of the proposed change require "Fast Track" processing of the change. If "Fast Track" processing is appropriate, the custodian disseminates the proposed change simultaneously to the national POCs, implementation POCs, and to the custodians of associated STANAGs for their review and comment.   When the custodian disseminates a change in this manner the custodian will establish a suspense date of no less than 15 days for replies from the POCs. POCs who do not submit replies by the suspense date will be deemed to agree to the proposed change.

g.   Profile modification requests shall be processed as Class II changes and will be issued as amendments to AEDP-7085.

   (1).   Profile modification requests shall be limited to:

      (a).   Editorial changes that do not affect interoperability

      (b).   Profile status changes

   (2).   The CST may recommend changes to the proposed modifications, and whether the proposed modifications should be accepted or rejected

   (3).   The custodian shall approve or reject any changes to the proposal

   (4).   The custodian shall provide a disposition of recommended or rejected within 6 months of receiving the proposed change

   (5).   The custodian will brief all recommended profile modifications to the All Source Intelligence Integration Sub-Group (ASIISG) and JCGISR.

   (6).   If accepted by the JCGISR, the modification shall be submitted to NATO Standardisation Office (NSO) for publication as an amendment.

h. All other requests for profile modifications shall require the introduction of a new profile. The introduction of a new profile shall comply with the following rules:

(1). Proposed profiles shall have a status of Preferred, or Allowed.

(2). The CST may recommend changes to the proposed profile, the initial status of the proposed profile, and whether the proposed profile should be accepted or rejected.

(3). The custodian shall assign the status of the proposed profile, and approve or reject any changes to the proposal.

(4). The custodian shall provide a disposition of recommended or rejected within 6 months of receiving the proposed change

(5). The custodian will brief all recommended new profiles to the ASIISG and JCGISR

(6). If accepted by the JCGISR, the new profile shall be submitted to NSO for publication as an amendment.

i. Profiles with a status of either Allowed or Preferred shall not be changed to Deprecated or Obsolete for a minimum of 5 years after their initial publication.

j. Profiles with a status of Deprecated shall not be changed to Obsolete for a period of at least 2 years from being published with a Deprecated status. Profiles may remain in Deprecated status indefinitely.

k. If there is no disagreement on the proposed change, the custodian notifies the POCs that the change will be adopted and incorporates the change into the ratification draft of the next amendment or new edition of AEDP-7085.

l. If the custodian determines that there is no need to expedite processing of a particular change proposal, the custodian may compile proposed changes and disseminate them to national POCs on a fixed schedule. Compiled changes will be distributed using the Change matrix shown in article A007.

m. National POCs disseminate proposed change(s) to interested individuals or organizations within their respective nations. National POCs and other interested parties within their nations assess the impact of the proposed changes and develop a national position on

each change using procedures established by the national POC. National POCs then report their national position to the custodian.

n.   If there is no disagreement on the proposed change, the custodian incorporates the change into the ratification draft of the next amendment or new edition of the STANAG.

o.   If National positions on a proposed change conflict, the custodian will call a meeting of the national POCs to discuss the proposed change and attempt to reach consensus. Procedures for announcing and conducting meetings of the national POCs are described in paragraph 6.6.

p.   Agreed changes will be incorporated into the ratification draft of the next amendment or new edition of AEDP-7085.

q.   When national POCs cannot reach agreement on a proposed change, the custodian forwards the proposed change, a memo for record outlining the various National positions on the change, and the custodian's recommendations to JCGISR where the disposition of the change will be decided. JCGISR decisions will be documented via a JCGISR Decision Sheet.

r.   The custodian will forward all proposed amendments or new editions of AEDP-7085 to JCGISR for approval.

s.   JCGISR will approve amendments or new editions of AEDP-7085 that contain only editorial changes prior to forwarding to the Director NSO for promulgation.

t.   JCGISR will approve amendments or new editions containing substantive changes prior to distribution to the Nations for ratification.
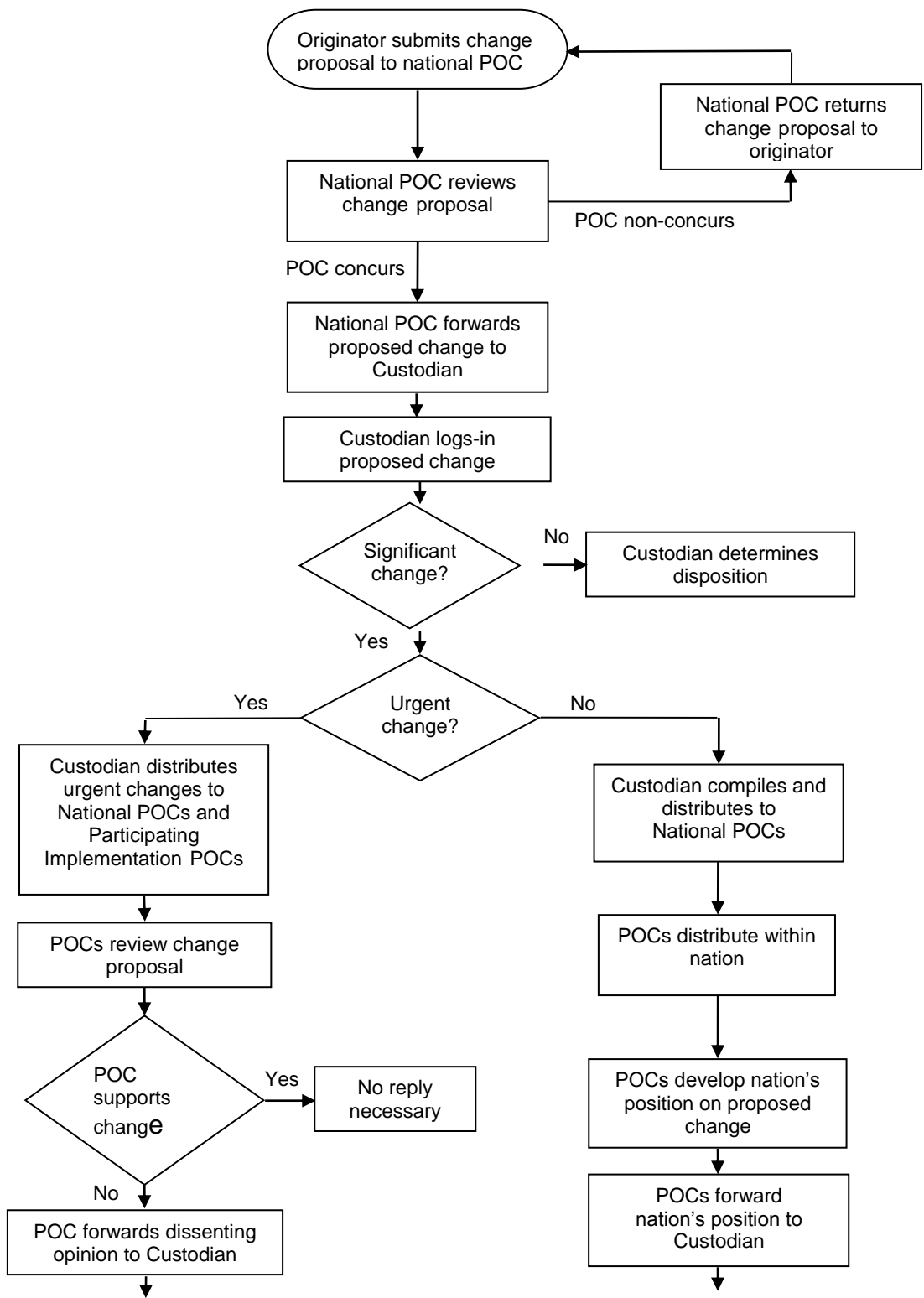
Figure 6-1: Change Management Process
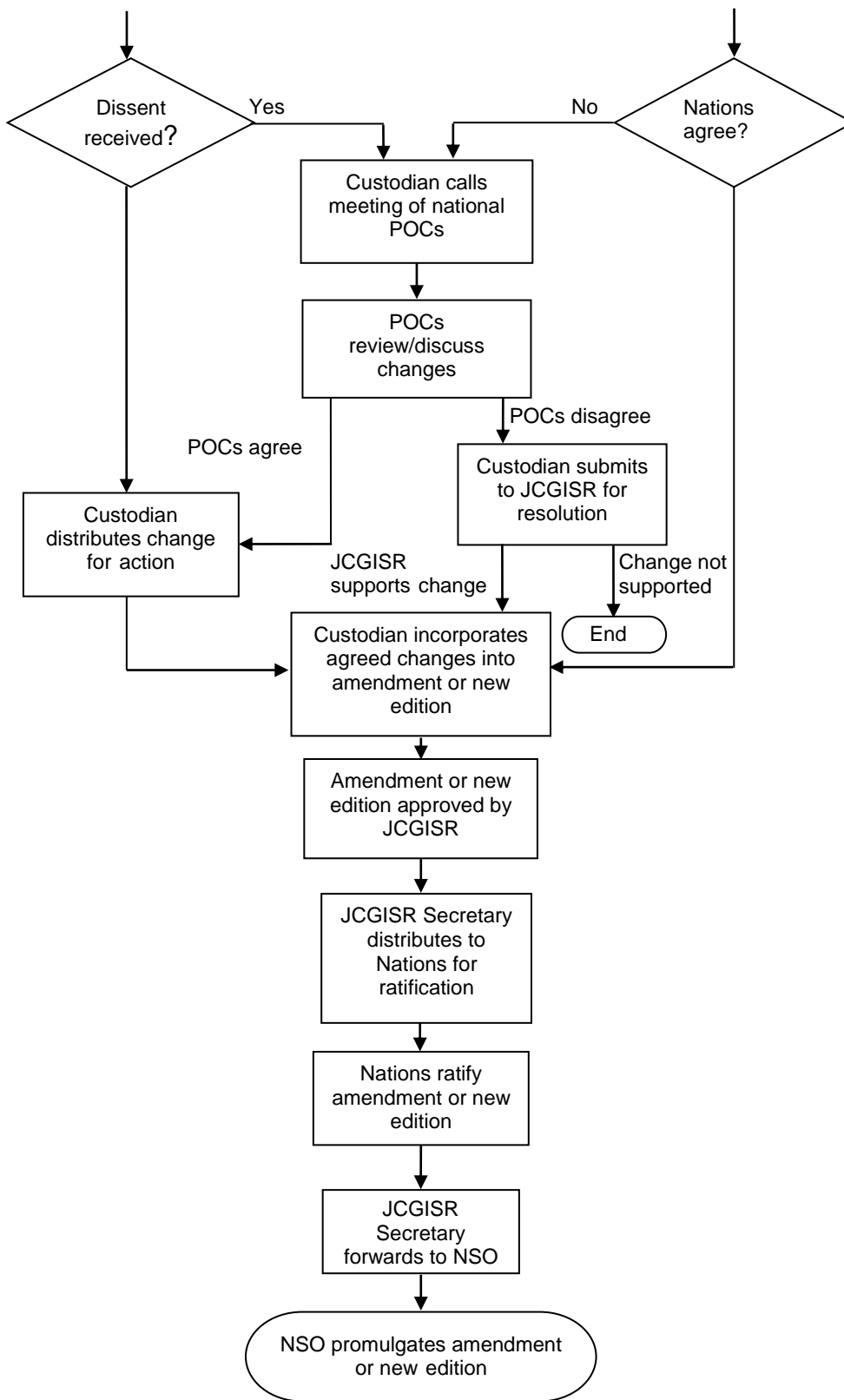
Figure 6-1: Change Management Process (Cont'd)

6.5.   STANDARDIZATION DOCUMENT CHANGE PROPOSAL

Change proposals may be submitted to the custodian via mail, electronic mail, or fax. Proposals shall be submitted in English and must include:

    a.   STANAG number:

    b.   Edition number:

    c.   Document date:

    d.   Document title:

    e.   Proposed change to: (section, paragraph, line, page)

    f.   Current wording:

    g.   Proposed wording:

    h.   Reason/rationale:

    i.   Originator's name:

    j.   Originator's organization:

    k.   Originator's mailing address:

    l.   Originator's telephone number:

    m.   Originator's fax number:

    n.   Originator's e-mail address:

    o.   Date submitted:

6.6.   POC/CST MEETING PROCEDURES

1.   All meetings will be announced with a minimum of 60 days notice.

2.   All meetings will be conducted in English. Those nations requiring the materials in different languages are responsible for translating the materials. Attendees to the meetings should be proficient enough in English to contribute to the meeting in English.

3.   National POCs may invite other individuals from their nations to participate during the meeting. These additional participants may be government or contractor

personnel. The intent of having additional personnel participate is to provide technical, operational, or procedural expertise that may not be resident with the national POCs and to allow participation by those who are developing systems using AEDP-7085.

4.   During the meeting, the custodian will direct discussion of each proposed change and will attempt to resolve any areas of disagreement.

5.   If the national POCs are unable to resolve their disagreements the group will prepare a memo for record outlining the proposed change and the various National positions. The custodian will provide this memo for record to JCGISR when referring the matter to JCGISR for a decision.

6.   Every effort will be made to determine the disposition of all proposed changes during the meeting. However, a decision may be deferred if the custodian determines that additional investigation/review is required. In such cases, the custodian will assign responsibility for additional study/review.

7.   Minutes of all meetings will be distributed within 30 days of the completion of the meeting. The minutes will include a record to document approved and disapproved changes, identify the status of all outstanding changes, and identify issues to be taken forward to JCGISR.

6.7.   CONSOLIDATED CHANGE PROPOSAL REPORT FORMAT

CHANGE PROPOSALS FOR AEDP-xxxx.x, 'Title' / DD/MM/YY

Serial	Critical (C) Substantive (S) Editorial (E)	Originator	Para	Sub-Para	Line	Comment	Rationale	Adjudication

<div style="border:1px solid black; text-align:center;">

CHAPTER 7   **VERSION CROSS-REFERENCE**

</div>

The purpose of this chapter is to provide a cross-reference between the current edition of AEDP-7085 and STANAG 7085, Edition 3, Amendment 2 which was superseded by the publication of AEDP-7085, Edition A.

Table 7-1 Paragraph/Section Cross Reference (Part 1 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
RELATED DOCUMENTS			
REFERENCED DOCUMENTS		REFERENCES	
AIM			
AGREEMENT			
DEFINITIONS			
GENERAL SECTION		CHAPTER 1	INTRODUCTION
4.		1.1.a	BACKGROUND
5.		1.1.b	BACKGROUND
6.		1.6.a	IMPLEMENTATIONS
7.		1.7.c	PROFILES
8.		1.8.a	COMPLIANCE
9.		1.1c	BACKGROUND
10.		2.17	PROTECTION OF SENSITIVE INFORMATION
11.		1.3.a	LAYER MODEL
12.		1.3.b	LAYER MODEL
13.		1.4	CASES

Table 7-1 Paragraph/Section Cross Reference (Part 2 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	TITLE
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
13.a.		1.4.1	CASE A
13.b.		1.4.2	CASE B
13.c.		1.4.3	CASE C
DETAILS OF THE AGREEMENT			
14.		N/A	
15.		1.1.d	BACKGROUND
16.		1.1e	BACKGROUND
17.		1.1.f	BACKGROUND
18.		1.6.b 1.7.a	IMPLEMENTATIONS PROFILES
19.		1.6.c	IMPLEMENTATIONS
20.		1.8.b	COMPLIANCE
21.		1.7.d	PROFILES
22.		1.8.c 1.7.b	COMPLIANCE PROFILES
23.		1.7.e	PROFILES
24.		1.7.f	PROFILES
IMPLEMENTATION OF THE AGREEMENT			
25.		N/A	
ANNEX A.	LEXICON		
A001	SOURCES FOR DEFINITIONS AND ABBREVIATIONS	N/A	

Table 7-1 Paragraph/Section Cross Reference (Part 3 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
A002	ABBREVIATIONS	LEXICON SECTION 2	ACRONYMS AND ABBREVIATIONS
A003	DEFINITIONS	LEXICON SECTION 1	TERMS and DEFINITIONS
ANNEX B	DIGITAL ISR DATA LINKS: GENERAL REQUIREMENTS	CHAPTER 2	GENERAL REQUIREMENTS FOR DIGITAL ISR DATA LINKS
B001	DOMAIN OF VALIDITY	1.2	DOMAIN OF VALIDITY
B002	MODES OF OPERATION	1.5	MODES OF OPERATION
B003	NETWORKING	1.9	NETWORKING
B004	INTERFACE DESCRIPTIONS	CHAPTER 2 SECTION I	INTERFACE DESCRIPTIONS
		2.1	TECHNICAL CHARACTERISTICS
B005	CASE A INTERFACES	CHAPTER 2 SECTION II	CASE A
		2.2	CASE A INTERFACES
B005.1	USER LAYER TO PHYSICAL LAYER INTERFACE	2.2.1	USER LAYER TO PHYSICAL LAYER INTERFACE
B005.2	PHYSICAL LAYER TO MEDIUM INTERFACE.	2.2.2	PHYSICAL LAYER TO MEDIUM INTERFACE.
B006	CASE B INTERFACES	CHAPTER 2 SECTION III	CASE B
		2.5	CASE B INTERFACES

Table 7-1 Paragraph/Section Cross Reference (Part 4 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
B006.1	USER LAYER TO DATA LINK LAYER INTERFACE	2.5.1	USER LAYER TO DATA LINK LAYER INTERFACE
B006.2	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE	2.5.2	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE
B006.3	PHYSICAL LAYER TO MEDIUM INTERFACE	2.5.3	PHYSICAL LAYER TO MEDIUM INTERFACE
B007	CASE C INTERFACES	CHAPTER 2 SECTION IV	CASE C
		2.8	CASE C INTERFACES
B007.1	USER LAYER TO NETWORK LAYER INTERFACE	2.8.1	USER LAYER TO NETWORK LAYER INTERFACE
B007.2	NETWORK LAYER TO DATA LINK LAYER INTERFACE	2.8.2	NETWORK LAYER TO DATA LINK LAYER INTERFACE
B007.3	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE	2.8.3	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE
B007.4	PHYSICAL LAYER TO MEDIUM INTERFACE	2.8.4	PHYSICAL LAYER TO MEDIUM INTERFACE
B008	RELAY OPERATIONS	1.10	RELAY OPERATIONS
B009	LINK MANAGEMENT	CHAPTER 2 SECTION V	LINK MANAGEMENT
B009.1		2.11.a	
B009.2		2.11.b	
APPENDIX 1 TO ANNEX B	POINT-TO-POINT DIGITAL ISR DATA LINKS		
B101	DOMAIN OF VALIDITY		
		CHAPTER 2 SECTION II	CASE A

Table 7-1 Paragraph/Section Cross Reference (Part 5 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
SECTION 1	SIMPLEX MODE OF TRANSMISSION FOR CASE A	2.3	SIMPLEX MODE OF TRANSMISSION FOR CASE A
B102	DESCRIPTION OF THE INTERFACES	2.3.1	DESCRIPTION OF THE INTERFACES
B103	USER LAYER TO PHYSICAL LAYER INTERFACE	2.3.2	USER LAYER TO PHYSICAL LAYER INTERFACE
B104	PHYSICAL LAYER TO MEDIUM INTERFACE	2.3.3	PHYSICAL LAYER TO MEDIUM INTERFACE
B105	PROTOCOLS	2.3.4	PROTOCOLS
SECTION II	DUPLEX MODE OF TRANSMISSION FOR CASE A	2.4	DUPLEX MODE OF TRANSMISSION FOR CASE A
B106	DESCRIPTION OF THE INTERFACES	2.4.1	DESCRIPTION OF THE INTERFACES
B107	USER LAYER TO PHYSICAL LAYER INTERFACE	2.4.2	USER LAYER TO PHYSICAL LAYER INTERFACE
B108	PHYSICAL LAYER TO MEDIUM INTERFACE	2.4.3	PHYSICAL LAYER TO MEDIUM INTERFACE
B109	PROTOCOLS	2.4.4	PROTOCOLS
		CHAPTER 2 SECTION III	CASE B
SECTION III	SIMPLEX MODE OF TRANSMISSION FOR CASE B	2.6	SIMPLEX MODE OF TRANSMISSION FOR CASE B
B110	DESCRIPTION OF THE INTERFACES	2.6.1	DESCRIPTION OF THE INTERFACES
B111	USER LAYER TO DATA LINK LAYER INTERFACE	2.6.2	USER LAYER TO DATA LINK LAYER INTERFACE
B112	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE	2.6.3	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE
B113	PHYSICAL LAYER TO MEDIUM INTERFACE	2.6.4	PHYSICAL LAYER TO MEDIUM INTERFACE
B114	PROTOCOLS	2.6.5	PROTOCOLS
SECTION IV	DUPLEX MODE OF TRANSMISSION FOR CASE B	2.7	DUPLEX MODE OF TRANSMISSION FOR CASE B
B115	DESCRIPTION OF THE INTERFACES	2.7.1	DESCRIPTION OF THE INTERFACES
B116	USER LAYER TO DATA LINK LAYER INTERFACE	2.7.2	USER LAYER TO DATA LINK LAYER INTERFACE

Table 7-1 Paragraph/Section Cross Reference (Part 6 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
SECTION V	SIMPLEX MODE OF TRANSMISSION FOR CASE C	2.9	SIMPLEX MODE OF OPERATION FOR CASE C
B117	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE	2.7.3	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE
B118	PHYSICAL LAYER TO MEDIUM INTERFACE	2.7.4	PHYSICAL LAYER TO MEDIUM INTERFACE
B119	PROTOCOLS	2.7.5	PROTOCOLS
		CHAPTER 2 SECTION IV	CASE C
B120	DESCRIPTION OF THE INTERFACES	N/A	
B121	USER LAYER TO NETWORK LAYER INTERFACE	N/A	
B122	NETWORK LAYER TO DATA LINK LAYER INTERFACE	N/A	
B123	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE	N/A	
B124	PHYSICAL LAYER TO MEDIUM INTERFACE	N/A	
B125	PROTOCOLS	N/A	
SECTION VI	DUPLEX MODE OF TRANSMISSION FOR CASE C	2.10	DUPLEX MODE OF OPERATION FOR CASE C
B126	DESCRIPTION OF THE INTERFACES	N/A	
B127	USER LAYER TO NETWORK LAYER INTERFACE	N/A	
B128	NETWORK LAYER TO DATA LINK LAYER INTERFACE	N/A	
B129	DATA LINK LAYER TO PHYSICAL LAYER INTERFACE	N/A	
B130	PHYSICAL LAYER TO MEDIUM INTERFACE	N/A	
B131	PROTOCOLS	N/A	
SECTION VII	LINK MANAGEMENT	CHAPTER 2 SECTION V	LINK MANAGEMENT

Table 7-1 Paragraph/Section Cross Reference (Part 7 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
1		2.11.c	
2		2.11.d	
B132	INTERNAL AND EXTERNAL LINK MANAGEMENT	2.12	INTERNAL AND EXTERNAL LINK MANAGEMENT
1		2.12.a	
2		2.12.b	
B133	TERMINAL LINK MANAGEMENT INTERFACE	2.13	TERMINAL LINK MANAGEMENT INTERFACE
B134	COMMAND PARAMETERS	2.14	COMMAND PARAMETERS
1		a	
2		b	
3	TIMEOUT AND FALLBACK	c	TIMEOUT AND FALLBACK
B135	OPTIONAL COMMAND PARAMETERS	2.15	OPTIONAL COMMAND PARAMETERS
B136	STATUS PARAMETERS	2.16	STATUS PARAMETERS
		CHAPTER 2 SECTION VI	PROTECTION OF CLASSIFIED AND SENSITIVE INFORMATION
		2.17	PROTECTION OF SENSITIVE INFORMATION
		2.18	PROTECTION OF CLASSIFIED INFORMATION
TAB A TO APPENDIX 1 TO ANNEX B	IMPLEMENTATION 1: COMMON DATA LINK (CDL) SYSTEMS	CHAPTER 3	IMPLEMENTATION 1: COMMON DATA LINK (CDL) SYSTEMS
SECTION I	INTRODUCTION	CHAPTER 3 SECTION I	INTRODUCTION
B1A01	BACKGROUND	3.1	BACKGROUND
B1A02	REFERENCES	3.2	REFERENCES
B1A03	IMPLEMENTATION 1 PROFILES	3.3.	IMPLEMENTATION 1 PROFILES

Table 7-1 Paragraph/Section Cross Reference (Part 8 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
SECTION II	CASE A IMPLEMENTATION 1 ISR DATA LINKS	CHAPTER 3 SECTION II	CASE A IMPLEMENTATION 1 ISR DATA LINKS
B1A04	APPLICABILITY OF REFERENCE A	3.4	APPLICABILITY OF REFERENCE [R3.1]
B1A05	WAVEFORM MODE NAMES	3.5	WAVEFORM MODE NAMES
B1A06	AUDIO CHANNEL NAMES	3.6	AUDIO CHANNEL NAMES
B1A07	USER CHANNEL NAMES	3.7	USER CHANNEL NAMES
B1A08	WAVEFORM MODE CAPACITIES	3.,8	WAVEFORM MODE CAPACITIES
B1A09	WAVEFORM MODE DESCRIPTIONS	3.9	WAVEFORM MODE DESCRIPTIONS
B1A10	RESERVED CHANNEL FORMAT DESCRIPTIONS	3.10	RESERVED CHANNEL FORMAT DESCRIPTIONS
1	NOT YET ASSIGNED CHANNELS	3.10.1	NOT YET ASSIGNED CHANNELS
2	RANGING CHANNEL	3.10.2	RANGING CHANNEL
3	AUDIO DATA CHANNELS	3.10.3	AUDIO DATA CHANNELS
4	DYNAMIC CONTROL (ID	3.10.4	DYNAMIC CONTROL (ID
B1A11	INTERFACES	3.11	INTERFACES
B1A12	COMPLIANCE TESTING	3.12	COMPLIANCE TESTING
B1A13	STANDARD NAVIGATIONAL DATA	3.13	STANDARD NAVIGATIONAL DATA
B1A14	REQUIREMENTS FOR INCLUSION OF WAVEFORM MODES	3.14	REQUIREMENTS FOR INCLUSION OF WAVEFORM MODES
B1A15	ENCRYPTION	3.15	ENCRYPTION
B1A16	ANTENNA POLARIZATION	3.16	ANTENNA POLARIZATION
B1A17	FREQUENCY ALLOCATIONS	3.17	FREQUENCY ALLOCATIONS
B1A18	MODULATION –OFF SUPPORT	3.18	MODULATION –OFF SUPPORT
B1A19	BR-137D AND BR-274D RANDOMIZATION TABLES	3.19	BR-137D AND BR-274D RANDOMIZATION TABLES

Table 7-1 Paragraph/Section Cross Reference (Part 9 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
B1A20	APPLICABILITY OF APPENDIX II OF REFERENCE [a]	3.20	APPLICABILITY OF APPENDIX II OF REFERENCE [R3.1]
B1A21	RF FILTERING FOR OQPSK MODULATED SIGNALS	3.21	RF FILTERING FOR OQPSK MODULATED SIGNALS
B1A21A	OQPSK MODULATION	3.22	OQPSK MODULATION
B1A21B	RF FILTERING FOR BPSK MODULATED SIGNALS	3.23	RF FILTERING FOR BPSK MODULATED SIGNALS
SECTION III	CASE B IMPLEMENTATION 1 ISR DATA LINKS	CHAPTER 3 SECTION III	CASE B IMPLEMENTATION 1 ISR DATA LINKS
B1A22	NETWORK INTERFACE ELEMENT (NIE) SELECTOR	3.24	NETWORK INTERFACE ELEMENT (NIE) SELECTOR
B1A23	SPANNING TREE PROTOCOLS	3.25	SPANNING TREE PROTOCOLS
B1A24	INTERFACES	3.26	INTERFACES
B1A25	NETWORK LAYER PROTOCOLS	3.27	NETWORK LAYER PROTOCOLS
B1A26	NUMBER OF MAC ADDRESSES TO BE ACCOMMODATED	3.28	NUMBER OF MAC ADDRESSES TO BE ACCOMMODATED
B1A27	HEADER COMPRESSION	3.29	HEADER COMPRESSION
SECTION IV	CASE C IMPLEMENTATION 1 ISR DATA LINKS	CHAPTER 3 SECTION IV	CASE C IMPLEMENTATION 1 ISR DATA LINKS
SECTION V	DATA LINK MANAGEMENT	CHAPTER 3 SECTION V	DATA LINK MANAGEMENT
B1A34	INTERNAL AND EXTERNAL LINK MANAGEMENT	3.30	INTERNAL AND EXTERNAL LINK MANAGEMENT
B1A35	EXECUTIVE FUNCTION COMMAND FRAMES	3.31	EXECUTIVE FUNCTION COMMAND FRAMES
a	EFC COMMANDS AND DISCRETE BITS, FL TRANSMITTERS	3.31.1	EFC COMMANDS AND DISCRETE BITS, FL TRANSMITTERS
b	EFC COMMANDS AND DISCRETE BITS, FL RECEIVERS	3.31.2	EFC COMMANDS AND DISCRETE BITS, FL RECEIVERS

Table 7-1 Paragraph/Section Cross Reference (Part 10 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
c	LOADING CONFIGURATION PARAMETERS	3.31.3	LOADING CONFIGURATION PARAMETERS
B1A36	IDL EFC EXTENSIONS FOR SUPPORT OF PROFILES	3.32	IDL EFC EXTENSIONS FOR SUPPORT OF PROFILES
1	PROFILE BASED CONFIGURATION SUPPORT	3.32.1	PROFILE BASED CONFIGURATION SUPPORT
2	ACTIVE AND FALLBACK CONFIGURATION	3.32.2	ACTIVE AND FALLBACK CONFIGURATION
3	SET PROFILE INDEX	3.32.3	SET PROFILE INDEX
4	SET FALLBACK TIMEOUT	3.32.4	SET FALLBACK TIMEOUT
5	SET PROFILE FAMILY IDENTIFIER AND REVISION NUMBER	3.32.5	SET PROFILE FAMILY IDENTIFIER AND REVISION NUMBER
6	SET FL CARRIER FREQUENCY	3.32.6	SET FL CARRIER FREQUENCY
7	RL CARRIER FREQUENCY COMMAND	3.32.7	RL CARRIER FREQUENCY COMMAND
8	FL PN CODE COMMAND	3.32.8	FL PN CODE COMMAND
9	CONFIGURATION LOAD COMMAND	3.32.9	CONFIGURATION LOAD COMMAND
10	GROUND STATION REAL TIME COORDINATE COMMAND	3.32.10	GROUND STATION REAL TIME COORDINATE COMMAND
11	LOAD COORDINATE COMMAND	3.32.11	LOAD COORDINATE COMMAND
B1A37	EXECUTIVE FUNCTION DATA FRAMES	3.33	EXECUTIVE FUNCTION DATA FRAMES
1		3.33	Executive Function Data Frames
2	EFD, RL TRANSMITTERS	3.33.1	EFD, RL TRANSMITTERS
3	EFD, RL RECEIVERS	3.33.2	EFD, RL RECEIVERS
B1A38	IDLE FD EXTENSIONS FOR SUPPORT OF PROFILES	3.34	IDLE FD EXTENSIONS FOR SUPPORT OF PROFILES
1	PROFILE BASED CONFIGURATION SUPPORT	3.34.1	PROFILE BASED CONFIGURATION SUPPORT

Table 7-1 Paragraph/Section Cross Reference (Part 11 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
2	IDL EFD 2, AW10: PROFILE FAMILY IDENTIFIER	3.34.2	IDL EFD 2, AW10: PROFILE FAMILY IDENTIFIER
3	IDLE FD 2, AW11: PROFILE REVISION NUMBER	3.34.3	IDLE FD 2, AW11: PROFILE REVISION NUMBER
4	IDL EFD 2, AW12: Modifier for IDL EFD 2 AW10 and 11, IDL EFD 3 AW15 and 16, and IDL EFD 4 AW16.	3.34.4	IDL EFD 2, AW12: Modifier for IDL EFD 2 AW10 and 11, IDL EFD 3 AW15 and 16, and IDL EFD 4 AW16.
5	IDL EFD 2, AW13: ACTIVE PROFILE NUMBER	3.34.5	IDL EFD 2, AW13: ACTIVE PROFILE NUMBER
6	IDLE FD 2, AW14: FALLBACK PROFILE NUMBER	3.34.6	IDLE FD 2, AW14: FALLBACK PROFILE NUMBER
7	AVAILABLE PROFILES	3.34.7	AVAILABLE PROFILES
8	FALLBACK TIMEOUT SETTING	3.34.8	FALLBACK TIMEOUT SETTING
	N/A	3.34.9	IDL EFD 1, D14, D15 AND D16.
SECTION VI	NETWORK MANAGEMENT	CHAPTER 3 SECTION VI	NETWORK MANAGEMENT
B1A39	CASE A	3.35	CASE A
B1A40	CASE B	3.36	CASE B
B1A 41	CASE C	3.37	CASE C
		ANNEX A TO CHAPTER 3	CLOSE AIR SUPPORT
		SECTION I	INTRODUCTION
		3A-1	BACKGROUND
		3A-2	REFERENCES
		3A-3	BE-CDL MODE 3 PROFILES
		SECTION II	CASE A BE-CDL MODE 3 ISR DATA LINKS
		3A-4	APPLICABILITY OF REFERENCES [R3.2] AND [R3.3}
		3A-5	FUNCTIONAL OVERVIEW OF BE-CDL MODE 3

Table 7-1 Paragraph/Section Cross Reference (Part 12 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
		3A-6	WAVEFORM DETAILS FOR BE-CDL MODE 3
		3A-7	RF REQUIREMENTS
		SECTION III	CASE B BE-CDL MODE 3 ISR DATA LINKS
		3A-8	PROTOCOLS AT THE DATA LINK LAYER
		SECTION IV	CASE C BE_CDL MODE 3 ISR DATA LINKS
		3A-9	PROTOCOLS AT THE NETWORK LAYER
		SECTION V	EXCEPTIONS
		3A-10	PEER-TO-PEER MESSAGING
		3A-11	NETWORK MANAGEMENT
		3A-12	VERIFICATION AND COMPLIANCE TESTING
TAB B TO APPENDIX 1 OF ANNEX B	IMPLEMENTATION 2: DIGITAL VIDEO BROADCAST – DIGITAL SATELLITE NEWS GATHERING (DVB-DSNG) BASED DATA LINK (DSDL) SYSTEMS	CHAPTER 4	IMPLEMENTATION 2: DIGITAL VIDEO BROADCAST – DIGITAL SATELLITE NEWS GATHERING (DVB-DSNG) BASED DATA LINK (DSDL) SYSTEMS
		CHAPTER 4 SECTION I	INTRODUCTION
B1B01	IDENTIFICATION	N/A	
B1B02	INTRODUCTION	4.1	BACKGROUND
B1B03	MINIMUM MODE OF INTEROPERABILITY FOR IMPLEMENTATION 2 (MMI2)	N/A	
B1B04	APPLICABLE DOCUMENTS	4.2	REFERENCES
B1B05	IMPLEMENTATION 2 PROFILES	4.3	IMPLEMENTATION 2 PROFILES
		4.4	OVERALL ARCHITECTURE
SECTION I	SIMPLEX MODE OF TRANSMISSION FOR CASE A	CHAPTER 4 SECTION II	CASE A
B1B06	INTRODUCTION	4.5	INTRODUCTION

Table 7-1 Paragraph/Section Cross Reference (Part 13 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
B1B07	PHYSICAL LAYER	4.6	RETURN LINK
1	SIGNAL-IN-SPACE INTERFACE	4.6	RETURN LINK
2	PHYSICAL LAYER INTERFACE	4.6	RETURN LINK
3	SERVICES	4.6	RETURN LINK
B1B08	DATA LINK LAYER		N/A
B1B09	NETWORK LAYER		N/A
B1B10	USER LAYER		N/A
B1B11	PROFILES OF IMPLEMENTATION 2	4.3	IMPLEMENTATION 2 PROFILES
SECTION II	DUPLEX MODE OF TRANSMISSION FOR CASE A	CHAPTER 4 SECTION II	CASE A
B1B12	INTRODUCTION	4.5	INTRODUCTION
B1B13	PHYSICAL LAYER	4.7	FORWARD LINK
1	SIGNAL-IN-SPACE INTERFACE	4.7	FORWARD LINK
2	PHYSICAL LAYER INTERFACE	4.7	FORWARD LINK
3	SERVICES	4.7	FORWARD LINK
B1B14	DATA LINK LAYER		N/A
B1B15	NETWORK LAYER		N/A
B1B16	USER LAYER		N/A
B1B17	PROFILES OF IMPLEMENTATION 2	4.3	IMPLEMENTATION 2 PROFILES
SECTION III	CASE B ISR DATA LINKS	CHAPTER 4 SECTION III	CASE B ISR DATA LINKS
		4.8	INTRODUCTION
		4.9	PHYSICAL LAYER

Table 7-1 Paragraph/Section Cross Reference (Part 14 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
		4.10	DATA LINK LAYER
SECTION IV	CASE C ISR DATA LINKS	CHAPTER 4 SECTION IV	CASE C ISR DATA LINKS
SECTION V	GENERAL REQUIREMENTS	CHAPTER 4 SECTION VI	GENERAL REQUIREMENTS
B1B18	TERMINAL MANAGEMENT	4.15	TERMINAL MANAGEMENT
B1B19	ENCRYPTION	4.11	BULK ENCRYPTION
B1B20	ANTENNA POINTING	4.16	ANTENNA POINTING
1	DATA PROCESSING/EXPLOITATION TERMINAL ANTENNA POINTING	4.16.a	DATA PROCESSING/EXPLOITATION TERMINAL ANTENNA POINTING
2	COLLECTION TERMINAL ANTENNA POINTING	4.16.b	COLLECTION TERMINAL ANTENNA POINTING
B1B21	FREQUENCY ALLOCATION	4.17	FREQUENCY ALLOCATION
B1B22	SPECTRUM MASK	CHAPTER 4 SECTION V	SPECTRUM MASK
		4.12	BACKGROUND
		4.13	RETURN LINK
		4.14	FORWARD LINK
ANNEX C		CHAPTER 5	
C001	INTRODUCTION	5.1	INTRODUCTION
APPENDIX 1 TO ANNEX C	IMPLEMENTATION 1 PROFILES	ANNEX A TO CHAPTER 5	IMPLEMENTATION 1 PROFILES
C101	PROFILE B.1.1.1	5A.1	PROFILE B.1.1.1
C102	PROFILE B.1.1.2	5A.2	PROFILE B.1.1.2

Table 7-1 Paragraph/Section Cross Reference (Part 15 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
C103	PROFILE B.1.1.3	5A.3	PROFILE B.1.1.3
C104	PROFILE B.1.1.4	5A.4	PROFILE B.1.1.4
C105	PROFILE B.1.1.5	5A.5	PROFILE B.1.1.5
C106	PROFILE B.1.1.6	5A.6	PROFILE B.1.1.6
C107	PROFILE B.1.1.7	5A.7	PROFILE B.1.1.7
C108	PROFILE B.1.1.8	5A.8	PROFILE B.1.1.8
C109	PROFILE B.1.1.9	5A.9	PROFILE B.1.1.9
C110	PROFILE B.1.1.10	5A.10	PROFILE B.1.1.10
C111	PROFILE B.1.1.11	5A.11	PROFILE B.1.1.11
C112	PROFILE B.1.1.12	5A.12	PROFILE B.1.1.12
C113	PROFILE B.1.1.13	5A.13	PROFILE B.1.1.13
C114	PROFILE B.1.1.14	5A.14	PROFILE B.1.1.14
C115	PROFILE B.1.1.15	5A.15	PROFILE B.1.1.15
C116	PROFILE B.1.1.16	5A.16	PROFILE B.1.1.16
C117	PROFILE B.1.1.17	5A.17	PROFILE B.1.1.17
C118	PROFILE B.1.1.18	5A.18	PROFILE B.1.1.18
C119	PROFILE B.1.1.19	5A.19	PROFILE B.1.1.19
C120	PROFILE B.1.1.20	5A.20	PROFILE B.1.1.20
C121	PROFILE B.1.1.21	5A.21	PROFILE B.1.1.21
C122	PROFILE B.1.1.22	5A.22	PROFILE B.1.1.22
C123	PROFILE B.1.1.23	5A.23	PROFILE B.1.1.23
C124	PROFILE B.1.1.24	5A.24	PROFILE B.1.1.24

Table 7-1 Paragraph/Section Cross Reference (Part 16of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
C125	PROFILE B.1.1.25	5A.25	PROFILE B.1.1.25
C126	PROFILE B.1.1.26	5A.26	PROFILE B.1.1.26
C127	PROFILE B.1.1.27	5A.27	PROFILE B.1.1.27
C128	PROFILE B.1.1.28	5A.28	PROFILE B.1.1.28
C129	PROFILE B.1.1.29	5A.29	PROFILE B.1.1.29
C130	PROFILE B.1.1.30	5A.30	PROFILE B.1.1.30
C131	PROFILE B.1.1.31	5A.31	PROFILE B.1.1.31
C132	PROFILE B.1.1.32	5A.32	PROFILE B.1.1.32
C133	PROFILE B.1.1.33	5A.33	PROFILE B.1.1.33
C134	PROFILE B.1.1.34	5A.34	PROFILE B.1.1.34
C135	PROFILE B.1.1.35	5A.35	PROFILE B.1.1.35
C136	PROFILE B.1.1.36	5A.36	PROFILE B.1.1.36
C137	PROFILE B.1.1.37	5A.37	PROFILE B.1.1.37
C138	PROFILE B.1.1.38	5A.38	PROFILE B.1.1.38
C139	PROFILE B.1.1.39	5A.39	PROFILE B.1.1.39
C140	PROFILE B.1.1.40	5A.40	PROFILE B.1.1.40
C141	PROFILE B.1.1.41	5A.41	PROFILE B.1.1.41
C142	PROFILE B.1.1.42	5A.42	PROFILE B.1.1.42
C143	PROFILE B.1.1.43	5A.43	PROFILE B.1.1.43
C144	PROFILE B.1.1.44	5A.44	PROFILE B.1.1.44
APPENDIX 2 TO ANNEX C	IMPLEMENTATION 2 PROFILES	ANNEX B TO CHAPTER 5	IMPLEMENTATION 2 PROFILES
C201	PROFILE B.1.2.1	5B.1	PROFILE B.1.2.1

Table 7-1 Paragraph/Section Cross Reference (Part 17 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
C202	PROFILE B.1.2.2	5B.2	PROFILE B.1.2.2
C203	PROFILE B.1.2.3	5B.3	PROFILE B.1.2.3
C204	PROFILE B.1.2.4	5B.4	PROFILE B.1.2.4
C205	PROFILE B.1.2.5	5B.5	PROFILE B.1.2.5
C206	PROFILE B.1.2.6	5B.6	PROFILE B.1.2.6
C207	PROFILE B.1.2.7	5B.7	PROFILE B.1.2.7
C208	PROFILE B.1.2.8	5B.8	PROFILE B.1.2.8
C209	PROFILE B.1.2.9	5B.9	PROFILE B.1.2.9
C210	PROFILE B.1.2.10	5B.10	PROFILE B.1.2.10
C211	PROFILE B.1.2.11	5B.11	PROFILE B.1.2.11
C212	PROFILE B.1.2.12	5B.12	PROFILE B.1.2.12
C213	PROFILE B.1.2.13	5B.13	PROFILE B.1.2.13
C214	PROFILE B.1.2.14	5B.14	PROFILE B.1.2.14
C215	PROFILE B.1.2.15	5B.15	PROFILE B.1.2.15
C216	PROFILE B.1.2.16	5B.16	PROFILE B.1.2.16
C217	PROFILE B.1.2.17	5B.17	PROFILE B.1.2.17
C218	PROFILE B.1.2.18	5B.18	PROFILE B.1.2.18
		5B.19	PROFILE B.1.2.19
		5B.20	PROFILE B.1.2.20
		5B.21	PROFILE B.1.2.21
		5B.22	PROFILE B.1.2.22
		5B.23	PROFILE B.1.2.23

Table 7-1 Paragraph/Section Cross Reference (Part 18 of 18)

STANAG 7085, EDITION 3, AMENDMENT 2		STANAG 7085, Edition 4	
Paragraph/Section	TITLE	Paragraph/Section	Title
STANAG 7085, Edition 3, Amendment 2		AEDP-7085, Edition A, Version 2	
		5B.24	PROFILE B.1.2.24
		5B.25	PROFILE B.1.2.25
		5B.26	PROFILE B.1.2.26
		5B.27	PROFILE B.1.2.27
		5B.28	PROFILE B.1.2.28
		5B.29	PROFILE B.1.2.29
		5B.30	PROFILE B.1.2.30
		ANNEX C TO CHAPTER 5	CLOSE AIR SUPPORT PROFILES
		5C.1	PROFILE B.1.3.1
		5C.2	PROFILE B.1.3.2
		5C.3	PROFILE B.1.3.3
		5C.4	PROFILE B.1.3.4

Table 7-2 Figure/Illustration Cross Reference (Part 1 of 3)

FIGURE NUMBER	TITLE	FIGURE NUMBER	TITLE
STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
1	ILLUSTRATION OF FORWARD AND RETURN DATA LINKS	1-1	ILLUSTRATION OF FORWARD AND RETURN DATA LINKS
2	ABSTRACT MODEL OF THE LINK	1-2	ABSTRACT MODEL OF THE LINK
3	ABSTRACT MODEL OF A CASE A ISR DATA LINK	1-3	ABSTRACT MODEL OF A CASE A ISR DATA LINK
4	ABSTRACT MODEL OF A CASE B ISR DATA LINK	1-4	ABSTRACT MODEL OF A CASE B ISR DATA LINK
5	ABSTRACT MODEL OF A CASE C ISR DATA LINK	1-5	ABSTRACT MODEL OF A CASE C ISR DATA LINK
6	ORGANIZATION OF STANAG 7085	N/A	ORGANIZATION OF STANAG 7085
1-B-1	INTERNAL LINK MANAGEMENT	2-1	INTERNAL LINK MANAGEMENT
1-B-2	EXTERNAL LINK MANAGEMENT	2-2	EXTERNAL LINK MANAGEMENT
A-1-B-1	BR-0.2 WAVEFORM MODE COMPONENT INTERFACES	3-1	BR-0.2 WAVEFORM MODE COMPONENT INTERFACES
A-1-B-2	BR-0.4 WAVEFORM MODE COMPONENT INTERFACES	3-2	BR-0.4 WAVEFORM MODE COMPONENT INTERFACES
A-1-B-3	BR-2.0F WAVEFORM MODE COMPONENT INTERFACES	3-3	BR-2.0F WAVEFORM MODE COMPONENT INTERFACES
A-1-B-4	BR-2.0R WAVEFORM MODE COMPONENT INTERFACES	3-4	BR-2.0R WAVEFORM MODE COMPONENT INTERFACES
A-1-B-5	BR-10.71N WAVEFORM MODE COMPONENT INTERFACES	3-5	BR-10.71N WAVEFORM MODE COMPONENT INTERFACES
A-1-B-6	BR-10.71F FORWARD LINK WAVEFORM MODE COMPONENT INTERFACES	3-6	BR-10.71F FORWARD LINK WAVEFORM MODE COMPONENT INTERFACES
A-1-B-7	BR-10.71R RETURN LINK WAVEFORM MODE COMPONENT INTERFACES	3-7	BR-10.71R RETURN LINK WAVEFORM MODE COMPONENT INTERFACES
A-1-B-8	BR-21.42F FORWARD LINK WAVEFORM MODE COMPONENT INTERFACES	3-8	BR-21.42F FORWARD LINK WAVEFORM MODE COMPONENT INTERFACES

Table 7-2 Figure/Illustration Cross Reference (Part 2 of 3)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
FIGURE NUMBER	TITLE	FIGURE NUMBER	TITLE
A-1-B-9	BR-21.42R RETURN LINK WAVEFORM MODE COMPONENT INTERFACES	3-9	BR-21.42R RETURN LINK WAVEFORM MODE COMPONENT INTERFACES
A-1-B-10	BR-44.73F FORWARD LINK WAVEFORM MODE COMPONENT INTERFACES	3-10	BR-44.73F FORWARD LINK WAVEFORM MODE COMPONENT INTERFACES
A-1-B-11	BR-44.73R RETURN LINK WAVEFORM MODE COMPONENT INTERFACES	3-11	BR-44.73R RETURN LINK WAVEFORM MODE COMPONENT INTERFACES
A-1-B-12	BR-137B WAVEFORM MODE RETURN LINK COMPONENT INTERFACES	3-12	BR-137B WAVEFORM MODE RETURN LINK COMPONENT INTERFACES
A-1-B-13	BR-137D WAVEFORM MODE RETURN LINK COMPONENT INTERFACES	3-13	BR-137D WAVEFORM MODE RETURN LINK COMPONENT INTERFACES
A-1-B-14	BR-274B WAVEFORM MODE RETURN LINK COMPONENT INTERFACES	3-14	BR-274B WAVEFORM MODE RETURN LINK COMPONENT INTERFACES
A-1-B-15	BR-274D WAVEFORM MODE RETURN LINK COMPONENT INTERFACES	3-15	BR-274D WAVEFORM MODE RETURN LINK COMPONENT INTERFACES
		3-16	INITIAL CRYPTO SYNCHRONIZATION
		3-17	CCSUM ALGORITHM
		3-18	CRYPTO SYNCHRONIZATION
A-1-B-16	OQPSK RF FILTERING REQUIREMENTS, RADIATED SIGNAL	3-19	OQPSK RF FILTERING REQUIREMENTS, RADIATED SIGNAL
A-1-B-16A	OQPSK CONSTELLATION DIAGRAM	3-20	OQPSK CONSTELLATION DIAGRAM
A-1-B-16B	PHASOR IN THE COMPLEX PLANE	3-21	PHASOR IN THE COMPLEX PLANE
A-1-B-16C	OQPSK PHASOR DIAGRAM	3-22	OQPSK PHASOR DIAGRAM
A-1-B-16D	RF FILTERING REQUIREMENTS FOR BPSK SIGNALS	3-23	RF FILTERING REQUIREMENTS FOR BPSK SIGNALS
A-1-B-17	INTERNAL LINK MANAGEMENT	3-24	INTERNAL LINK MANAGEMENT

Table 7-2 Figure/Illustration Cross Reference (Part 3 of 3)

FIGURE NUMBER	TITLE	FIGURE NUMBER	TITLE
STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
A-1-B-18	EXTERNAL LINK MANAGEMENT	3-25	EXTERNAL LINK MANAGEMENT
		3A-1	BE-CDL MODE 3 FUNCTIONAL DIAGRAM
B-1-B-1	LAYERED MODEL OF CASE A TERMINAL - SIMPLEX	N/A	
B-1-B-2	PHYSICAL LAYER INTERFACE BASED ON MPEG2-TS	N/A	
B-1-B-3	RETURN LINK SERVICES	N/A	
B-1-B-4	LAYERED MODEL OF CASE A TERMINAL - DUPLEX	N/A	
B-1-B-5	FORWARD LINK SERVICES	N/A	
B-1-B-6	SPECTRAL MASK FOR FORWARD LINK EMISSIONS	4-9	DSDL FORWARD LINK MASK
B-1-B-7	SPECTRAL MASK FOR RETURN LINK EMISSIONS	4-8	DSDL RETURN LINK MASK
		4-1	OVERALL DSDL SYSTEM ARCHITECTURE
		4-2	DSDL RETURN LINK PHYSICAL LAYER ARCHITECTURE
		4-3	DSDL FORWARD LINK PHYSICAL LAYER ARCHITECTURE
		4-4	DATA LINK LAYER FRAME DESCRIPTION
		4-5	ENCRYPTION INTERFACES
		4-6	IV INSERTION INTO PPP INFORMATION FIELD
		4-7	ITU MASK

Table 7-3 Table Cross Reference (Part 1 of 9)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
TABLE NUMBER	TITLE	TABLE NUMBER	TITLE
1	EXAMPLE OF STANAG 7085 REGISTRY FORMAT	1-1	EXAMPLE OF STANAG 7085 REGISTRY FORMAT
B-1	PHYSICAL LAYER TO MEDIUM INTERFACE DESIGN CHARACTERISTICS	2-1	PHYSICAL LAYER TO MEDIUM INTERFACE DESIGN CHARACTERISTICS
1-B-1	SUMMARY OF LAYER FUNCTIONS AND INTERFACES, CASE A SIMPLEX MODE	2-2	SUMMARY OF LAYER FUNCTIONS AND INTERFACES, CASE A SIMPLEX MODE
1-B-2	RETURN LINK SIGNAL CHARACTERISTICS	2-3	RETURN LINK SIGNAL CHARACTERISTICS
1-B-3	SUMMARY OF LAYER FUNCTIONS AND INTERFACES, CASE A DUPLEX MODE	2-4	SUMMARY OF LAYER FUNCTIONS AND INTERFACES, CASE A DUPLEX MODE
1-B-4	FORWARD LINK SIGNAL CHARACTERISTICS	2-5	FORWARD LINK SIGNAL CHARACTERISTICS
1-B-5	SUMMARY OF LAYER FUNCTIONS AND INTERFACES FOR CASE B SIMPLEX MODE	2-6	SUMMARY OF LAYER FUNCTIONS AND INTERFACES FOR CASE B SIMPLEX MODE
1-B-6	SUMMARY OF LAYER FUNCTIONS AND INTERFACES FOR CASE B DUPLEX MODE	2-7	SUMMARY OF LAYER FUNCTIONS AND INTERFACES FOR CASE B DUPLEX MODE
A-1-B-1	IMPLEMENTATION 1 PROFILE SUMMARY	3-1	IMPLEMENTATION 1 PROFILE SUMMARY
A-1-B-2	STANAG 7085 WAVEFORM MODE NAMES	3-2	AEDP 7085 WAVEFORM MODE NAMES
A-1-B-3	REFERENCE [A] AUDIO REFERENCES	3-3	REFERENCE [R3.1] AUDIO REFERENCES
A-1-B-4	FORWARD LINK CHANNEL NAMES	3-4	FORWARD LINK CHANNEL NAMES
A-1-B-5	RETURN LINK CHANNEL NAMES	3-5	RETURN LINK CHANNEL NAMES
A-1-B-6	STANAG 7085 WAVEFORM MODE CAPACITIES	3-6	AEDP 7085 WAVEFORM MODE CAPACITIES
A-1-B-7	STANAG 7085 POLARIZATION EXCEPTIONS TO REFERENCE [A]	3-7	AEDP 7085 POLARIZATION EXCEPTIONS TO REFERENCE [A]
A-1-B-8	CORRECTED 256A RANDOMIZATION TABLE FOR BR-137D AND BR-274D	3-8	CORRECTED 256A RANDOMIZATION TABLE FOR BR-137D AND BR-274D
A-1-B-9	CORRECTED 256B RANDOMIZATION TABLE FOR BR-274D	3-9	CORRECTED 256B RANDOMIZATION TABLE FOR BR-274D
A-1-B-10	OQPSK RF FILTERING REQUIREMENTS, RADIATED SIGNAL, INNER MASK	3-10	OQPSK RF FILTERING REQUIREMENTS, RADIATED SIGNAL, INNER MASK
A-1-B-11	OQPSK RF FILTERING REQUIREMENTS, RADIATED SIGNAL, OUTER MASK	3-11	OQPSK RF FILTERING REQUIREMENTS, RADIATED SIGNAL, OUTER MASK
A-1-B-11A	RF FILTERING REQUIREMENTS FOR BPSK SIGNALS	3-12	RF FILTERING REQUIREMENTS FOR BPSK SIGNALS

Table 7-3 Table Cross Reference (Part 2 of 9)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
TABLE NUMBER	TITLE	TABLE NUMBER	TITLE
A-1-B-12	REQUIRED EFC COMMANDS	3-13	REQUIRED EFC COMMANDS
A-1-B-13	REQUIRED EFC DISCRETE BITS	3-14	REQUIRED EFC DISCRETE BITS
A-1-B-14	SET PROFILE INDEX COMMAND FORMAT	3-15	SET PROFILE INDEX COMMAND FORMAT
A-1-B-15	SET FALLBACK TIMEOUT COMMAND FORMAT	3-16	SET FALLBACK TIMEOUT COMMAND FORMAT
A-1-B-16	SET PROFILE FAMILY IDENTIFIER AND REVISION NUMBER COMMAND FORMAT	3-17	SET PROFILE FAMILY IDENTIFIER AND REVISION NUMBER COMMAND FORMAT
A-1-B-17	PROFILE FAMILY IDENTIFIERS AND REVISION NUMBERS	3-18	PROFILE FAMILY IDENTIFIERS AND REVISION NUMBERS
A-1-B-18	SET FL CARRIER FREQUENCY COMMAND FORMAT	3-19	SET FL CARRIER FREQUENCY COMMAND FORMAT
A-1-B-19	SET RL CARRIER FREQUENCY COMMAND FORMAT	3-20	SET RL CARRIER FREQUENCY COMMAND FORMAT
A-1-B-20	SET FL PN CODE COMMAND FORMAT	3-21	SET FL PN CODE COMMAND FORMAT
A-1-B-21	CONFIGURATION LOAD COMMAND	3-22	CONFIGURATION LOAD COMMAND
		3-23	GROUND STATION/REAL TIME COORDINATE COMMAND
		3-24	GROUND STATION/REAL TIME COORDINATE COMMAND SUBCOMMAND ID2 DEFINITIONS FOR FIXED DATA PROCESSING/EXPLOITATION STATIONS
		3-25	GROUND STATION/REAL TIME COORDINATE COMMAND SUBCOMMAND ID2 DEFINITIONS FOR MOBILE DATA PROCESSING/EXPLOITATION STATIONS
A-1-B-22	IDL EFD 1	3-26	IDL EFD 1
A-1-B-23	IDL EFD 2	3-27	IDL EFD 2
A-1-B-24	IDL EFD 3	3-28	IDL EFD 3
A-1-B-25	IDL EFD 4	3-29	IDL EFD 4
A-1-B-25A	IDL EFD 5	3-30	IDL EFD 5
A-1-B-26	IDL EFD 2 ANALOG WORDS	3-31	IDL EFD 2 ANALOG WORDS
A-1-B-27	IDL EFD 2 ANALOG WORD 12 BIT DEFINITIONS	3-32	IDL EFD 2 ANALOG WORD 12 BIT DEFINITIONS
A-1-B-28	IDL EFD 2 ANALOG WORD 15 BIT DEFINITIONS	3-33	IDL EFD 2 ANALOG WORD 15 BIT DEFINITIONS

Table 7-3 Table Cross Reference (Part 3 of 9)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
TABLE NUMBER	TITLE	TABLE NUMBER	TITLE
		3-34	IDL EFD 1 DISCRETE BIT D14, D15 AND D16 DEFINITIONS
		3A-1	BE-CDL MODE 3 PROFILE SUMMARY
B-1-B-1	IMPLEMENTATION 2 PROFILES	N/A	
		4-1	IMPLEMENTATION 2 PREFERRED PROFILES
		4-2	IMPLEMENTATION 2 ALLOWED PROFILES
		4-3	IMPLEMENTATION 2 DEPRECATED PROFILES
		4-4	IMPLEMENTATION 2 OBSOLETE PROFILES
B-1-B-2	RETURN LINK RADIO FREQUENCY CHARACTERISTICS	N/A	
B-1-B-3	RETURN LINK MODULATION SCHEME AND CHANNEL CODING	4-5	RETURN LINK MODULATION SCHEME AND CHANNEL CODING
B-1-B-4	FORWARD LINK RADIO FREQUENCY CHARACTERISTICS	N/A	
B-1-B-5	FORWARD LINK MODULATION SCHEME AND CHANNEL CODING	4-6	FORWARD LINK MODULATION SCHEME AND CHANNEL CODING
B-1-B-6	SPECTRAL MASK FOR FORWARD LINK EMISSIONS	4-10	DSDL FORWARD LINK MASK
B-1-B-7	SPECTRAL MASK FOR RETURN LINK EMISSIONS	4-8	DSDL RETURN LINK MASK
		4-7	NECESSARY BANDWIDTH AND EMITTER CLASS OF DSDL RETURN LINKS
		4-9	NECESSARY BANDWIDTH AND EMITTER CLASS OF DSDL FORWARD LINK
C-1	IMPLEMENTATION 1 PROFILES	5-1	IMPLEMENTATION 1 PROFILES
C-2	IMPLEMENTATION 2 PROFILES	5-2	IMPLEMENTATION 2 PROFILES
		5-3	CLOSE AIR SUPPORT PROFILES
C-1-1	PROFILE B.1.1.1 CHARACTERISTICS	5A-1	PROFILE B.1.1.1 CHARACTERISTICS
C-1-2	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.1	5A-2	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.1
C-1-3	PROFILE B.1.1.2 CHARACTERISTICS	5A-3	PROFILE B.1.1.2 CHARACTERISTICS

Table 7-3 Table Cross Reference (Part 4 of 9)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
TABLE NUMBER	TITLE	TABLE NUMBER	TITLE
C-1-4	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.2	5A-4	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.2
C-1-5	PROFILE B.1.1.3 CHARACTERISTICS	5A-5	PROFILE B.1.1.3 CHARACTERISTICS
C-1-6	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.3	5A-6	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.3
C-1-7	PROFILE B.1.1.4 CHARACTERISTICS	5A-7	PROFILE B.1.1.4 CHARACTERISTICS
C-1-8	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.4	5A-8	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.4
C-1-9	PROFILE B.1.1.5 CHARACTERISTICS	5A-9	PROFILE B.1.1.5 CHARACTERISTICS
C-1-10	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.5	5A-10	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.5
C-1-11	PROFILE B.1.1.6 CHARACTERISTICS	5A-11	PROFILE B.1.1.6 CHARACTERISTICS
C-1-12	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.6	5A-12	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.6
C-1-13	PROFILE B.1.1.7 CHARACTERISTICS	5A-13	PROFILE B.1.1.7 CHARACTERISTICS
C-1-14	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.7	5A-14	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.7
C-1-15	PROFILE B.1.1.8 CHARACTERISTICS	5A-15	PROFILE B.1.1.8 CHARACTERISTICS
C-1-16	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.8	5A-16	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.8
C-1-17	PROFILE B.1.1.9 CHARACTERISTICS	5A-17	PROFILE B.1.1.9 CHARACTERISTICS
C-1-18	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.9	5A-18	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.9
C-1-19	PROFILE B.1.1.10 CHARACTERISTICS	5A-19	PROFILE B.1.1.10 CHARACTERISTICS
C-1-20	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.10	5A-20	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.10
C-1-21	PROFILE B.1.1.11 CHARACTERISTICS	5A-21	PROFILE B.1.1.11 CHARACTERISTICS
C-1-22	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.11	5A-22	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.11

Table 7-3 Table Cross Reference (Part 5 of 9)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
TABLE NUMBER	TITLE	TABLE NUMBER	TITLE
C-1-23	PROFILE B.1.1.12 CHARACTERISTICS	5A-23	PROFILE B.1.1.12 CHARACTERISTICS
C-1-24	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.12	5A-24	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.12
C-1-25	PROFILE B.1.1.13 CHARACTERISTICS	5A-25	PROFILE B.1.1.13 CHARACTERISTICS
C-1-26	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.13	5A-26	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.13
C-1-27	PROFILE B.1.1.14 CHARACTERISTICS	5A-27	PROFILE B.1.1.14 CHARACTERISTICS
C-1-28	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.14	5A-28	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.14
C-1-29	PROFILE B.1.1.15 CHARACTERISTICS	5A-29	PROFILE B.1.1.15 CHARACTERISTICS
C-1-30	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.15	5A-30	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.15
C-1-31	PROFILE B.1.1.16 CHARACTERISTICS	5A-31	PROFILE B.1.1.16 CHARACTERISTICS
C-1-32	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.16	5A-32	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.16
C-1-33	PROFILE B.1.1.17 CHARACTERISTICS	5A-33	PROFILE B.1.1.17 CHARACTERISTICS
C-1-34	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.17	5A-34	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.17
C-1-35	PROFILE B.1.1.18 CHARACTERISTICS	5A-35	PROFILE B.1.1.18 CHARACTERISTICS
C-1-36	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.18	5A-36	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.18
C-1-37	PROFILE B.1.1.19 CHARACTERISTICS	5A-37	PROFILE B.1.1.19 CHARACTERISTICS
C-1-38	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.19	5A-38	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.19
C-1-39	PROFILE B.1.1.20 CHARACTERISTICS	5A-39	PROFILE B.1.1.20 CHARACTERISTICS
C-1-40	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.20	5A-40	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.20
C-1-41	PROFILE B.1.1.21 CHARACTERISTICS	5A-41	PROFILE B.1.1.21 CHARACTERISTICS

Table 7-3 Table Cross Reference (Part 6 of 9)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
TABLE NUMBER	TITLE	TABLE NUMBER	TITLE
C-1-42	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.21	5A-42	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.21
C-1-43	PROFILE B.1.1.22 CHARACTERISTICS	5A-43	PROFILE B.1.1.22 CHARACTERISTICS
C-1-44	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.22	5A-44	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.22
C-1-45	PROFILE B.1.1.23 CHARACTERISTICS	5A-45	PROFILE B.1.1.23 CHARACTERISTICS
C-1-46	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.23	5A-46	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.23
C-1-47	PROFILE B.1.1.24 CHARACTERISTICS	5A-47	PROFILE B.1.1.24 CHARACTERISTICS
C-1-48	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.24	5A-48	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.24
C-1-49	PROFILE B.1.1.25 CHARACTERISTICS	5A-49	PROFILE B.1.1.25 CHARACTERISTICS
C-1-50	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.25	5A-50	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.25
C-1-51	PROFILE B.1.1.26 CHARACTERISTICS	5A-51	PROFILE B.1.1.26 CHARACTERISTICS
C-1-52	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.26	5A-52	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.26
C-1-53	PROFILE B.1.1.27 CHARACTERISTICS	5A-53	PROFILE B.1.1.27 CHARACTERISTICS
C-1-54	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.27	5A-54	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.27
C-1-55	PROFILE B.1.1.28 CHARACTERISTICS	5A-55	PROFILE B.1.1.28 CHARACTERISTICS
C-1-56	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.28	5A-56	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.28
C-1-57	PROFILE B.1.1.29 CHARACTERISTICS	5A-57	PROFILE B.1.1.29 CHARACTERISTICS
C-1-58	PROFILE B.1.1.30 CHARACTERISTICS	5A-58	PROFILE B.1.1.30 CHARACTERISTICS
C-1-59	PROFILE B.1.1.31 CHARACTERISTICS	5A-59	PROFILE B.1.1.31 CHARACTERISTICS
C-1-60	PROFILE B.1.1.32 CHARACTERISTICS	5A-60	PROFILE B.1.1.32 CHARACTERISTICS
C-1-61	PROFILE B.1.1.33 CHARACTERISTICS	5A-61	PROFILE B.1.1.33 CHARACTERISTICS

Table 7-3 Table Cross Reference (Part 7 of 9)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
TABLE NUMBER	TITLE	TABLE NUMBER	TITLE
C-1-62	PROFILE B.1.1.34 CHARACTERISTICS	5A-62	PROFILE B.1.1.34 CHARACTERISTICS
C-1-63	PROFILE B.1.1.35 CHARACTERISTICS	5A-63	PROFILE B.1.1.35 CHARACTERISTICS
C-1-64	PROFILE B.1.1.36 CHARACTERISTICS	5A-64	PROFILE B.1.1.36 CHARACTERISTICS
C-1-65	PROFILE B.1.1.37 CHARACTERISTICS	5A-65	PROFILE B.1.1.37 CHARACTERISTICS
C-1-66	PROFILE B.1.1.38 CHARACTERISTICS	5A-66	PROFILE B.1.1.38 CHARACTERISTICS
C-1-67	PROFILE B.1.1.39 CHARACTERISTICS	5A-67	PROFILE B.1.1.39 CHARACTERISTICS
C-1-68	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.39	5A-68	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.39
C-1-69	PROFILE B.1.1.40 CHARACTERISTICS	5A-69	PROFILE B.1.1.40 CHARACTERISTICS
C-1-70	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.40	5A-70	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.40
C-1-71	PROFILE B.1.1.41 CHARACTERISTICS	5A-71	PROFILE B.1.1.41 CHARACTERISTICS
C-1-72	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.41	5A-72	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.41
C-1-73	PROFILE B.1.1.42 CHARACTERISTICS	5A-73	PROFILE B.1.1.42 CHARACTERISTICS
C-1-74	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.42	5A-74	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.42
C-1-75	PROFILE B.1.1.43 CHARACTERISTICS	5A-75	PROFILE B.1.1.43 CHARACTERISTICS
C-1-76	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.43	5A-76	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.43
C-1-77	PROFILE B.1.1.44 CHARACTERISTICS	5A-77	PROFILE B.1.1.44 CHARACTERISTICS
C-1-78	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.44	5A-78	CONFIGURABLE BIT ASSIGNMENTS FOR PROFILE B.1.1.44
C-2-1	PROFILE B.1.2.1 CHARACTERISTICS	5B-1	PROFILE B.1.2.1 CHARACTERISTICS
C-2-2	PROFILE B.1.2.2 CHARACTERISTICS	5B-2	PROFILE B.1.2.2 CHARACTERISTICS
C-2-3	PROFILE B.1.2.3 CHARACTERISTICS	5B-3	PROFILE B.1.2.3 CHARACTERISTICS
C-2-4	PROFILE B.1.2.4 CHARACTERISTICS	5B-4	PROFILE B.1.2.4 CHARACTERISTICS

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TABLE NUMBER	STANAG 7085, EDITION 3, AMENDMENT 2 TITLE	TABLE NUMBER	AEDP-7085, Edition A, Version 2 TITLE
C-2-5	PROFILE B.1.2.5 CHARACTERISTICS	5B-5	PROFILE B.1.2.5 CHARACTERISTICS
C-2-6	PROFILE B.1.2.6 CHARACTERISTICS	5B-6	PROFILE B.1.2.6 CHARACTERISTICS
C-2-7	PROFILE B.1.2.7 CHARACTERISTICS	5B-7	PROFILE B.1.2.7 CHARACTERISTICS
C-2-8	PROFILE B.1.2.8 CHARACTERISTICS	5B-8	PROFILE B.1.2.8 CHARACTERISTICS
C-2-9	PROFILE B.1.2.9 CHARACTERISTICS	5B-9	PROFILE B.1.2.9 CHARACTERISTICS
C-2-10	PROFILE B.1.2.10 CHARACTERISTICS	5B-10	PROFILE B.1.2.10 CHARACTERISTICS
C-2-11	PROFILE B.1.2.11 CHARACTERISTICS	5B-11	PROFILE B.1.2.11 CHARACTERISTICS
C-2-12	PROFILE B.1.2.12 CHARACTERISTICS	5B-12	PROFILE B.1.2.12 CHARACTERISTICS
C-2-13	PROFILE B.1.2.13 CHARACTERISTICS	5B-13	PROFILE B.1.2.13 CHARACTERISTICS
C-2-14	PROFILE B.1.2.14 CHARACTERISTICS	5B-14	PROFILE B.1.2.14 CHARACTERISTICS
C-2-15	PROFILE B.1.2.15 CHARACTERISTICS	5B-15	PROFILE B.1.2.15 CHARACTERISTICS
C-2-16	PROFILE B.1.2.16 CHARACTERISTICS	5B-16	PROFILE B.1.2.16 CHARACTERISTICS
C-2-17	PROFILE B.1.2.17 CHARACTERISTICS	5B-17	PROFILE B.1.2.17 CHARACTERISTICS
C-2-18	PROFILE B.1.2.18 CHARACTERISTICS	5B-18	PROFILE B.1.2.18 CHARACTERISTICS
		5B-19	PROFILE B.1.2.19 CHARACTERISTICS
		5B-20	PROFILE B.1.2.20 CHARACTERISTICS
		5B-21	PROFILE B.1.2.21 CHARACTERISTICS
		5B-22	PROFILE B.1.2.22 CHARACTERISTICS
		5B-23	PROFILE B.1.2.23 CHARACTERISTICS
		5B-24	PROFILE B.1.2.24 CH24RACTERISTICS
		5B-25	PROFILE B.1.2.25 CHARACTERISTICS
		5B-26	PROFILE B.1.2.26 CHARACTERISTICS
		5B-27	PROFILE B.1.2.27 CHARACTERISTICS
		5B-28	PROFILE B.1.2.28 CHARACTERISTICS
		5B-29	PROFILE B.1.2.29 CHARACTERISTICS

Table 7-3 Table Cross Reference (Part 9 of 9)

STANAG 7085, EDITION 3, AMENDMENT 2		AEDP-7085, Edition A, Version 2	
TABLE NUMBER	TITLE	TABLE NUMBER	TITLE
		5B-30	PROFILE B.1.2.30 CHARACTERISTICS
		5C-1	PROFILE B.1.3.1 CHARACTERISTICS
		5C-2	PROFILE B.1.3.2 CHARACTERISTICS
		5C-3	PROFILE B.1.3.3 CHARACTERISTICS
		5C-4	PROFILE B.1.3.4 CHARACTERISTICS

LIST OF ACRONYMS AND ABBREVIATIONS

8-PSK	8-ary Phase Shift Keying

B

BER	Bit Error Ratio (FED-STD-1037C)
BPSK	Binary Phase Shift Keying

C

CDL	Common Data Link
COMSEC	Communications Security (FED-STD-1037C)

D

dB	Decibel (FED-STD-1037C)
DSDL	Digital Video Broadcast - Digital Satellite News Gathering (DVB-DSNG) based Data Link (DSDL) Systems

E

EFC	Executive Function Commands (Implementation 1 Specific)
EFD	Executive Function Data (Implementation 1 Specific)

F

FEC	Forward Error Correction

J

JR	Jam Resistant

L

LPI	Low Probability of Intercept
LPI / LPD	Low Probability of Intercept / Low Probability of Detection

M

MUX	Multiplexer

N

NS0	NATO Standardisation Office

Q

QPSK	Quadrature Phase Shift Keying

R

RF   Radio Frequency (FED-STD-1037C)

RHCP   Right Hand Circular Polarization

S

SCMG   **Security Classification and/or Marking Guide**

STANAG   Standardisation Agreement (NATO) (FED-STD-1037B)

GLOSSARY

A

active configuration. The combination of profile and variable parameters currently in use in a terminal

allowed. A profile status indicator applied to profiles that are acceptable for certification.

antenna gain. The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength, or the same irradiance, at the same distance. When not specified otherwise, the gain refers to the direction of maximum radiation. The gain may be considered for a specified polarization. [In this document, antenna gain refers to isotropic gain (G_i) where the reference antenna is an isotropic antenna isolated in space.] (FED-STD-1037C)

auxiliary user channel. Auxiliary user channels are Case A user channels that may or may not be provided on data link terminals. Auxiliary user channels, if any, are identified in the specific implementation and profiles. The use of these auxiliary user channels is not defined by AEDP-7085.

B

bulk encryption. Encryption of the single bit stream containing all user data, reserved channel data and multiplexer sync data.

C

channel. A portion of the data link capacity available to transmit data to the opposite end of the data link. For the purposes of AEDP-7085, a channel may be a user channel or a reserved channel.

collection terminal. A collection terminal is one of a pair of cooperating data link terminals. A collection terminal is installed on an ISR collection platform or relay platform for the primary purpose of transferring ISR sensor data to one or more data processing/exploitation terminals. A collection terminal must provide a return link transmitter and may provide a forward link receiver.

composite data rate. The data rate, in bits per second, resulting from the combination of user data, reserved channel data (if any) and synchronization data.

communications security (COMSEC). Measures and controls taken to deny unauthorized persons information derived from telecommunications and ensure the authenticity of such telecommunications. Note: Communications security includes cryptosecurity, transmission security, emission security, and physical security of COMSEC material.

configuration. A profile and the accompanying FL frequency, RL frequency, and spreading code. Optionally, the configuration may include terminal type (collection or data processing/exploitation) and frequency plan (normal or inverted).

D

data. Representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means. Any representations such as characters or analog quantities to which meaning is or might be assigned. (FED-STD-1037C)

data link. The means of connecting one location to another for the purpose of transmitting and receiving data. (AAP-6(R))

data link layer (DL-Layer). Provides a service to the Network Layer by identifying separate sectors of data (if necessary) and finding an acceptable physical path and characteristics for transmission and reception.

data link terminal. A device capable of sending, receiving, or sending and receiving information over a radio frequency channel.

data processing/exploitation station. The total operating units required to receive ISR data from a collection platform, to process, exploit, and retransmit such information and, as necessary, to communicate with the collection platform for command and control.

data processing/exploitation terminal. A data processing/exploitation terminal is one of a pair of cooperating data link terminals. A data processing/exploitation terminal is typically installed at an ISR data processing/exploitation station or relay platform for the primary purpose of receiving ISR sensor data transmitted by a cooperating collection terminal and passing it on for processing or exploitation. A data processing/exploitation terminal must provide a return link receiver and may provide a forward link transmitter.

deferred. A profile status indicator used to identify profiles for which no NATO approved encryption solution has been selected yet.

deprecated. A profile status indicator applied to profiles that are likely to be rendered obsolete in a future edition of AEDP-7085. Nations are discouraged from specifying only deprecated profiles for new ISR systems or for modifications to existing ISR systems.

F

fallback configuration. The combination of profile, variable parameters, and fallback timeout period. After the timeout period, the fallback configuration becomes the active configuration.

forward error correction. A system of error control for data transmission wherein the receiving device has the capability to detect and correct any character or code block that contains fewer than a predetermined number of symbols in error. (FED-STD-1037C)

forward link. Link carrying commands and associated data to a sensor and sensor platform.

frame. A frame is an organised structure of synchronisation data and, optionally, link management data and/or user data, which is used in order to achieve a specific link function or improve the link performance (e.g. link synchronisation, data extraction, etc.). In order to perform such operation(s), the frame organisation must be known to all participating terminals.

I

implementation In AEDP-7085 a term used to identify data links designed in accordance with a particular specification or group of specifications.

inner code (or coding) In data link terminals employing concatenated forward error correction processing, the second forward error correction code applied to the transmitted data stream.

interleaving A data-communication technique used in conjunction with error-correcting codes, to reduce the number of undetected errors burst. **Note**: code symbols are reordered before transmission in such a manner that any two successive code symbols are separated in the transmitted sequence. (FED-STD 1037C)

interoperability. 1. The ability to operate in synergy in the execution of assigned tasks. (AAP-6) 2. In AEDP-7085, it means the ability of one data link terminal to communicate with another in a different system (Methodology for Standardization of NATO Imagery Data Links, September 1992).

L

link management. A User Layer activity which requires involvement of entities at all layers of the reference model in order to control and monitor the activities at the Network, Data Link, and Physical Layers.

link management data. Data generated by a management entity for the purpose of controlling and monitoring a data link terminal. Note: Specific link management data requirements are described in each implementation description.

link manager. A link manager is a link management entity that generates commands and responds to notifications generated elsewhere.

M

multiplexer. A device that combines multiple inputs into an aggregate signal to be transported via a single transmission channel. (FED STD 1037C)

N

network layer (N-Layer). The Network Layer provides the functional and procedural means of transferring variable length data from a source to a destination via one or more networks while maintaining the quality of service requested by the User Layer. The Network Layer may perform network routing, flow control, segmentation/desegmentation, and error control functions.

O

obsolete. A profile status indicator applied to profiles that no longer provide an acceptable level of interoperability. New certifications will not be issued for systems that implement only obsolete profiles.

occupied bandwidth. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified

percentage b/2 of the total mean power of a given emission. Unless otherwise specified in an ITU-R Recommendation for the appropriate class of emission, the value of b/2 should be taken as 0.5%. (i.e. The width of the band containing 99% of the mean power of the RF channel.)

occupied bandwidth (modulator). The occupied (double-sided, 99%) bandwidth of a modulated signal prior to amplification by the transmitting data link terminal. Note: Occupied bandwidth (modulator) may not be available for measurement in all terminals.

occupied bandwidth (radiated). The occupied (double-sided, 99%) bandwidth of a modulated and amplified signal radiated by a transmitting data link terminal.

outer code (or coding). First or only forward error correction code applied to the transmitted data stream.

P

packet. The unit of data sent across a network. "Packet" is a generic term used to describe units of data at all levels of the protocol stack, but it is most correctly used to describe application data units. (RFC 1983)

parameter. A physical characteristic of a data link whose value must be defined to permit interaction of two terminals.

physical layer (Ph-Layer). The layer which provides mechanical, electrical, functional, and procedural means to activate and de-activate physical connection for bit transmission between data link entities. (X.200). In AEDP-7085, the physical connection exists in the atmospheric medium and data transmission covers analogue as well as digital (bits).

preferred. A profile status indicator applied to profiles that are acceptable for certification and that are encouraged for implementation in new ISR systems or for modifications to existing ISR systems.

profile. A unique combination of transmission characteristics, and protocols

profile status. An indicator that provides guidance to program managers and system developers with the goal of increasing data link interoperability in the future. The five indicators used in AEDP-7085 are preferred, allowed, deprecated, obsolete, and deferred. (Deferred is used to identify profiles for which no NATO approved encryption solution has been selected yet.)

protocol - (N)- Protocol. A set of rules and formats (semantic and syntactic) which determines the communication behaviour of (N)-entities in the performance of (N)-functions (X.200)

R

randomization. A technique used to invert the sense of pseudo-randomly selected bits of a bit stream to avoid long sequences of bits of the same sense (FED-STD 1037C).

relay. An intermediate station passing information between terminals or other relay stations. (FED-STD-1037C) This may be used to overcome loss of signal by reason of propagation loss and lack of a direct line-of-sight.

relay terminal. A pair of data link terminals used to receive and retransmit return link, and optionally forward link signals, to extend the operational range of an ISR data link.

reserved channel(s). Portion(s) of the data link capacity reserved within a data link implementation for specific purposes, and for which a particular data format is prescribed. Note: Reserved channels, if any, shall be described in the specific implementation.

return link. In AEDP-7085, a link carrying sensor data.

S

spread spectrum. A telecommunications technique in which a signal is transmitted in a bandwidth considerably greater than the frequency content of the original information (FED-STD-1037C, Definition 1).

spectral mask. The set of constraints on the maximum levels of the power spectral density of the radiated waveform.

T

terminal. Equipment to convert user information into radio signals for transmission or to convert received radio signals into user information with any additional equipment required for the data link control function. User information includes sensor outputs, auxiliary data, recorded data, data formatted for recording, display inputs and commands.

terminal data. Information on the status of a data link terminal necessary for the management and operation of the link.

transport multiplex adaptation. An Implementation 2 specific term used to describe the bit wise inversion (from 47_{HEX} to $B8_{HEX}$) of the sync byte in the first transport packet of each group of eight packets in the incoming MPEG-2 Transport Stream. See the ETSI EN 301 210 V1.1.1 (1999-03) for details.

U

user. A person, organization or other entity (including a computer or computer system) that is external to the data link and that employs the services of the data link to transfer data. A user functions as a source or final destination, or both, for user data.

user channel. A portion of the data link capacity available to users for transmission or reception of user data.

user data. Data transferred across the functional interface between a source user and the data link for delivery to a destination user. Note: In telecommunications systems, user data includes user overhead data.

user data rate. The maximum rate, in bits per second, at which user data may be introduced into or extracted from the data link

user layer. The layer containing entities concerned with acquiring, recording, and displaying ISR data and with associated commands and control. The data link exists to provide

services to such entities. User Layer entities include those normally found at the Application, Presentation, Session, and Transport Layers of the ISO Model. In addition, the User Layer may contain entities normally found at the Network and Data Link Layers (Case A), or Network Layer (Case B).

V

variable parameters. A set of parameters whose values may be changed during a mission without changing the selected profile within the terminal

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