FIXM Core v4.2.0
Requirements Traceability Report

Table of Contents

Introduction

The FIXM v4.2.0 Requirements Traceability Report serves as a mapping guide between the FIXM logical model classes and the ICAO / FF-ICE requirements. It is primarily intended as a reference for the FIXM CCB and development team to explain why each class exists in the FIXM model.

This document lists every class in FIXM Core, organized by packages, along with its associated requirement(s).

This document is complementary to the other FIXM artifacts such as the FIXM models and the FIXM schemas.

Core

Flight

Aircraft

Aircraft	
Modeling	Construct used for the data modeling purposes.

AircraftAddress	
B-2.16	Aircraft Address An aircraft address shall be expressed as a hexadecimal number in accordance with Annex 10, Volume 3, Chapter 9.

AircraftRegistration	
B-2.17	Registration An aircraft registration number shall be expressed in accordance with the requirements and assignments in Chapter 3 of Annex 7.

AircraftRegistrationList	
Modeling	Construct used for the data modeling purposes.

AircraftType	
B-2.5	Aircraft Type The specification of an aircraft type shall allow expression of a four-character type designator per ICAO Doc. 8643. Such indicators are two to four alphanumeric characters, starting with a letter. The specification of an aircraft type shall allow expression of a type that has no Doc. 8643 identifier, with indication that it is not a standard identifier. The specification of an aircraft type shall allow expression of each of the various type designators involved in a formation flight.

AircraftTypeChoice	
B-2.5	Aircraft Type The specification of an aircraft type shall allow expression of a four-character type designator per ICAO Doc. 8643. Such indicators are two to four alphanumeric characters, starting with a letter. The specification of an aircraft type shall allow expression of a type that has no Doc. 8643 identifier, with indication that it is not a standard identifier. The specification of an aircraft type shall allow expression of each of the various type designators involved in a formation flight.

FormationCount	
B-2.33	Number of Aircraft Number of aircraft shall be represented as an integer number of aircraft. When translating to ATS Message format, any number of aircraft greater than 99 shall be translated to 99.

AircraftApproachCategory	
B-2.18	Aircraft Approach Category Aircraft Approach Category shall be expressed as one of the aircraft categories specified in the Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS, Doc 8168), Volume I, Section 4, Chapter 1, paragraph 1.3.

WakeTurbulenceCategory	
B-2.9	Wake Turbulence Category Expression of a Wake Turbulence Category shall support at a minimum the categories defined in PANS-ATM Section 4.9.1.

Arrival

Arrival	
Field Type 17	Arrival aerodrome and time Format: - [a][b] (sp) [c] Examples: -EHAM1433 　　　　　-ZZZZ1620 DEN HELDER SINGLE HYPHEN (a)　Arrival aerodrome 　　　4 LETTERS, being 　　　the ICAO four-letter location indicator allocated to the arrival aerodrome, as specified 　　　in Doc 7910, Location Indicators, or 　　　ZZZZ if no ICAO location indicator has been allocated. (b)　Time of arrival 　　　4 NUMERICS, giving 　　　the actual time of arrival. * This field is to be terminated here if an ICAO location indicator has been allocated to the arrival aerodrome. SPACE (c)　Arrival aerodrome 　　　Name of arrival aerodrome, if ZZZZ is inserted in (a).

ReclearanceInFlight	
Field Type 18-RIF	RIF/ The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to reclearance in flight.

ReclearanceInFlight	
	Examples: -RIF/DTA HEC KLAX -RIF/ESP G94 CLA YPPH

Capability

CommunicationCapabilities	
Field Type 10a	Radiocommunication, navigation and approach aid equipment and capabilities 1 LETTER as follows: N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable OR S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1) AND/OR ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment and capabilities

Second column content (two-column list):

A	GBAS landing system	J7	CPDLC FANS 1/A SATCOM (Iridium)
B	LPV (APV with SBAS)		
C	LORAN C	K	MLS
D	DME	L	ILS
E1	FMC WPR ACARS	M1	ATC SATVOICE (INMARSAT)
E2	D-FIS ACARS		
E3	PDC ACARS	M2	ATC SATVOICE (MTSAT)
F	ADF	M3	ATC SATVOICE (Iridium)
G	GNSS. If any portion of the flight is planned planned to be conducted under FR, it refers to GNSS receivers that comply with the requirements of Annex 10,Volume I (*See Note 2*)	O P1 P2 P3	VOR CPDLC RCP 400 (*see Note 7*) CPDLC RCP 240 (*see Note 7*) SATVOICE RCP 400 (*see Note 7*)
H	HF RTF	P4-P9	Reserved for RCP
I	Inertial navigation	R	PBN approved (*see Note 4*)
J1	CPDLC ATN VDL Mode 2 (*see Note 3*)	T	TACAN
		U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL Mode A	W	RVSM approved
		X	MNPS approved
J4	CPDLC FANS 1/A VDL	Y	VHF with 8.33 kHz channel spacing capability
J5	CPDLC FANS 1/A SATCOM (INMARSAT)		
J6	CPDLC FANS 1/A SATCOM (MTSAT)	Z	Other equipment carried or other capabilities (*see Note 5*)

Note 1. - If the letter S is used, standard equipment is considered to be VHF RTF, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.

Note 2. - If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ separated by a space.

Note 3. - See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard - DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

Note 4. - If the letter R is used, the performance-based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific route segment, route or area is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).

Note 5. - If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/ and/or DAT, as appropriate.

Note 6. - Information on navigation capability is provided to ATC for clearance and routing purposes.

CommunicationCapabilities

	Note 7. - Guidance material on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

CommunicationCapabilityCodeList

Modeling	Construct used for the data modeling purposes.

DatalinkCommunicationCapabilityCodeList

Modeling	Construct used for the data modeling purposes.

Dinghies

B-2.34.8	Expression of Supplementary Information shall allow specification of the Dinghies on board, including: a) Number b) Capacity c) Color of cover

EmergencyRadioCapabilityTypeList

Modeling	Construct used for the data modeling purposes.

FlightCapabilities

B-2.10	Equipment and Capability Expression of Equipment and Capability shall allow derivation of the codes defined in PANS-ATM Item 10 where applicable. Note that new types of capability that have no corresponding PANS-ATM Appendix 3 designator may be lost on translation to Appendix 3 ATS Message format. Expression of Equipment and Capability shall allow for specification of capabilities that are not pre-defined. This is to allow for new capabilities or ANSP-specific capabilities that have not been designated standard codes but are required in a flight plan. Expression of Navigation Capability shall allow identification of the following capabilities at a minimum: a) Automatic Direction Finder (ADF) b) VHF omnidirectional radio range (VOR) c) UHF tactical air navigation aid (TACAN) d) Distance Measuring Equipment (DME) e) Global Navigation Satellite System (GNSS) f) Indicate presence of Space Based Augmentation System (SBAS) g) Indicate presence of Ground Based Augmentation System (GBAS) h) Inertial Navigation (INS) i) VOR/DME j) DME/DME k) DME/DME/Inertial Reference Unit (IRU) l) Reduced Vertical Separation Minimum (RVSM) Expression of Approach Capability shall allow identification of the following capabilities at a minimum: a) Instrument Landing System (ILS)

FlightCapabilities

b) Microwave Landing System (MLS)

c) Localizer Performance with Vertical Guidance (LPV)

d) Ground-Based Augmentation Landing System (GBAS Landing System)

Expression of PBN capability shall allow derivation of the codes defined in PANS-ATM Appendix 3, item 18 PBN/ where applicable.

Expression of PBN capability shall allow identification of the type of navigation capability used to achieve the performance (e.g. RNAV 1 achieved using GNSS).

Expression of PBN capability shall allow identification of optional functional capabilities described in ICAO Doc. 9613 Vol. 1, Attachment A, Section 5 (e.g. Fixed Radius Path capabilities including RF legs and Fixed Radius Turns).

Expression of PBN capability shall allow identification of the type of Vertical Navigation required, as explained in ICAO Doc. 9613 Part A. section 1.1.4.2.

Expression of PBN capability shall allow capabilities defined in ICAO Doc. 9613 to be represented, at a minimum to include:

a) Minimum Navigation Performance Specifications (MNPS)

b) RNP 10 (RNAV 10)

c) RNP 4

d) RNAV 5

e) RNAV 2

f) RNAV 1

g) RNP 2

h) RNP 1

i) RNP 0.3

j) RNP Approach

k) RNP AR Approach, including the accuracy level approved (within the range indicated in ICAO Doc. 9613 Table II-A-1-1). The ability to default to the least-accurate specification should be accommodated

Expression of Communication Capability shall allow at a minimum the following voice communication capabilities:

a) VHF Radiotelephone (RTF)

b) VHF RTF with 8.33 kHZ spacing

c) UHF RTF

d) HF RTF

e) Inmarsat Satcom RTF

f) MTSAT Satcom RTF

g) Iridium Satcom RTF

Expression of Communication Capability shall allow at a minimum the following data communication capabilities:

a) ATN Controller Pilot Data Communications (CPDLC)
   i. Via VHF Data Link (VDL) Mode 2

b) FANS 1/A CPDLC
   ii. Via HF Data Link (HFDL)
   iii. Via VHF Data Link, Mode 2 (VDL Mode 2)
   iv. Via VDL Mode 0/a (ACARS)
   v. Via Satcom (Inmarsat)
   vi. Via Satcom (MTSAT)
   vii. Via Satcom (Iridium)

c) ACARS

FlightCapabilities

	viii. Waypoint Reporting (WPR)
	ix. Digital Flight Information System (D-FIS)
	x. Pre-Departure Clearance (PDC)
	
	Expression of Surveillance Capability shall allow at a minimum indication of the following transponder capabilities. Sub-items indicate optional capabilities:
	
	a) Mode A transponder
	    i. With Mode C altitude
	
	b) Mode S transponder
	    i. With altitude encoding
	    ii. With aircraft ID
	    iii. With extended squitter (ADS-B)
	    iv. With enhanced Mode S
	
	Expression of Surveillance Capability shall allow at a minimum indication of the following ADS-B capabilities including the ability to indicate whether certified against EASA AMC20-24, CASA CA020.18 and/or USA 14 CFR 91.227 / FAA AC 20-165 (all versions):
	
	a) VDL Mode 4
	    i. With "Out" Capability
	    ii. With "In" Capability
	
	b) 1090 MHz
	    i. With "Out" Capability
	    ii. With "In" Capability
	
	c) Universal Access Transceiver (UAT)
	    i. With "Out" Capability
	    ii. With "In" Capability
	
	d) ADS-B In with the following capabilities / approvals:
	    i. Airborne traffic situational awareness (AIRB)
	    ii. Own Visual Separation in Approach (VSA)
	    iii. Traffic Situational Awareness on the Surface (SURF)
	    iv. Traffic Situational Awareness with Alerts (TSAA)
	    v. CDTI (Cockpit Display of Traffic Information) Assisted Visual Separation (CAVS)
	    vi. RTCA DO-317B / EUROCAE ED-194A
	    vii. Flight Deck based Interval Management for Spacing (FIM-S)
	    viii. RTCA DO-361 / EUROCAE ED-236
	    ix. In trail Procedures (ITP)
	    x. RTCA DO-317A / EUROCAE ED-194 (including subsequent versions)
	
	Expression of Surveillance Capability shall allow at a minimum indication of the following ADS-C capabilities:
	
	a) ATN
	b) FANS 1/A
	
	Expression of Surveillance Capability shall allow at a minimum indication of categories of Required Surveillance Performance as described in ICAO Doc. 9869 (Performance-Based Communication and Surveillance Manual)

LifeJacketTypeList

Modeling	Construct used for the data modeling purposes.

NavigationCapabilities	
Field Type 10a	Radiocommunication, navigation and approach aid equipment and capabilities 1 LETTER as follows: N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable OR S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1) AND/OR ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment and capabilities

COM/NAV/approach aid equipment and capabilities

A	GBAS landing system	J7	CPDLC FANS 1/A SATCOM (Iridium)
B	LPV (APV with SBAS)		
C	LORAN C	K	MLS
D	DME	L	ILS
E1	FMC WPR ACARS	M1	ATC SATVOICE (INMARSAT)
E2	D-FIS ACARS		
E3	PDC ACARS	M2	ATC SATVOICE (MTSAT)
F	ADF	M3	ATC SATVOICE (Iridium)
G	GNSS. If any portion of the flight is planned planned to be conducted under FR, it refers to GNSS receivers that comply with the requirements of Annex 10, Volume I (*See Note 2*)	O	VOR
		P1	CPDLC RCP 400 (*see Note 7*)
		P2	CPDLC RCP 240 (*see Note 7*)
		P3	SATVOICE RCP 400 (*see Note 7*)
H	HF RTF	P4-P9	Reserved for RCP
I	Inertial navigation	R	PBN approved (*see Note 4*)
J1	CPDLC ATN VDL Mode 2 (*see Note 3*)	T	TACAN
		U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL Mode A	W	RVSM approved
		X	MNPS approved
J4	CPDLC FANS 1/A VDL	Y	VHF with 8.33 kHz channel spacing capability
J5	CPDLC FANS 1/A SATCOM (INMARSAT)		
J6	CPDLC FANS 1/A SATCOM (MTSAT)	Z	Other equipment carried or other capabilities (*see Note 5*)

    Note 1. - If the letter S is used, standard equipment is considered to be VHF RTF, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.

    Note 2. - If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ separated by a space.

    Note 3. - See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard - DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

    Note 4. - If the letter R is used, the performance-based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific route segment, route or area is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).

    Note 5. - If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/ and/or DAT, as appropriate.

    Note 6. - Information on navigation capability is provided to ATC for clearance and routing purposes.

    Note 7. - Guidance material on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

NavigationCapabilityCodeList	
Modeling	Construct used for the data modeling purposes.

PerformanceBasedNavigationCapabilityCodeList	
Modeling	Construct used for the data modeling purposes.

SelectiveCallingCode	
B-2.15	SELCAL Code Expression of a Selective Calling (SELCAL) code shall be four characters consistent with the definitions in Annex 10, Volume 3, Chapter 3.

SurveillanceCapabilities	
Field Type 10b	Surveillance equipment and capabilities INSERT N if no surveillance equipment for the route to be flown is carried, or the equipment is unserviceable, OR ONE OR MORE of the following descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment and/or capabilities on board: SSR Modes A and C A Transponder - Mode A (4 digits - 4 096 codes) C Transponder - Mode A (4 digits - 4 096 codes) and Mode C SSR Modes S E Transponder - Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability H Transponder - Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability I Transponder - Mode S, including aircraft identification, but no pressure-altitude capability L Transponder - Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS-B) and enhanced surveillance capability P Transponder - Mode S, including pressure-altitude, but no aircraft identification capability S Transponder - Mode S, including both pressure-altitude and aircraft identification capability X Transponder - Mode S with neither aircraft identification nor pressure-altitude capability *Note. - Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.* ADS-B B1 ADS-B with dedicated 1 090 MHz ADS-B "out" capability B2 ADS-B with dedicated 1 090 MHz ADS-B "out" and "in" capability U1 ADS-B "out" capability using UAT U2 ADS-B "out" and "in" capability using UAT V1 ADS-B "out" capability using VDL Mode 4 V2 ADS-B "out" and "in" capability using VDL Mode 4 ADS-C D1 ADS-C with FANS 1/A capabilities G1 ADS-C with ATN capabilities Alphanumeric characters not indicated above are reserved. *Note 1. - The RSP specification(s), if applicable, will be listed in Item 18 following the indicator SUR/. Guidance material on the application of performance-based surveillance, which prescribes RSP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).* *Note 2. - Additional surveillance equipment or capabilities will be listed in Item 18 following the indicator SUR/, as required by the appropriate authority.*

SurveillanceCapabilityCodeList	
Modeling	Construct used for the data modeling purposes.

SurvivalCapabilities	
B-2.34	Supplementary Information
	Expression of Supplementary Information shall allow specification of fuel endurance expressed as hours and minutes of flying time.
	Expression of Supplementary Information shall allow specification of an integer number of persons on board.
	Expression of Supplementary Information shall allow specification of the types of emergency radios carried on board, including at a minimum:
	a) UHF radio b) VHF radio c) Emergency Locator Transmitter (ELT)
	Expression of Supplementary Information shall allow specification of the types of Survival Capabilities on board, including at a minimum:
	a) Polar b) Desert c) Maritime d) Jungle
	Expression of Supplementary Information shall allow specification of the characteristics of Life Jackets on board, including at a minimum:
	a) Light b) Fluorescence c) UHFradio d) VHF radio
	Expression of Supplementary Information shall allow specification of the aircraft color and markings as free text per B-2.30.
	Expression of Supplementary Information shall allow specification of the name of the pilot in command as free text per B-2.30.
	Expression of Supplementary Information shall allow specification of the Dinghies on board, including:
	a) Number b) Capacity c) Color of cover
	Expression of Supplementary Information shall allow specification of clarifying remarks and other survival equipment carried that is not specified above.

SurvivalEquipmentTypeList	
Modeling	Construct used for the data modeling purposes.

CommunicationCapabilityCode	
Field Type 10a	Radiocommunication, navigation and approach aid equipment and capabilities

CommunicationCapabilityCode

	1 LETTER as follows: N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable OR S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1) AND/OR ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment and capabilities

A	GBAS landing system	J7	CPDLC FANS 1/A
B	LPV (APV with SBAS)		SATCOM (Iridium)
C	LORAN C	K	MLS
D	DME	L	ILS
E1	FMC WPR ACARS	M1	ATC SATVOICE
E2	D-FIS ACARS		(INMARSAT)
E3	PDC ACARS	M2	ATC SATVOICE (MTSAT)
F	ADF	M3	ATC SATVOICE (Iridium)
G	GNSS. If any portion of the flight is planned	O	VOR
	planned to be conducted under FR, it refers	P1	CPDLC RCP 400 (*see Note 7*)
	to GNSS receivers that comply with the	P2	CPDLC RCP 240 (*see Note 7*)
	requirements of Annex 10,Volume I (*See Note 2*)	P3	SATVOICE RCP 400 (*see Note 7*)
H	HF RTF	P4-P9	Reserved for RCP
I	Inertial navigation	R	PBN approved (*see Note 4*)
J1	CPDLC ATN VDL Mode 2	T	TACAN
	(*see Note 3*)	U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL	W	RVSM approved
	Mode A	X	MNPS approved
J4	CPDLC FANS 1/A VDL	Y	VHF with 8.33 kHz channel
J5	CPDLC FANS 1/A		spacing capability
	SATCOM (INMARSAT)	Z	Other equipment carried or
J6	CPDLC FANS 1/A		other capabilities (*see Note 5*)
	SATCOM (MTSAT)		

Note 1. - If the letter S is used, standard equipment is considered to be VHF RTF, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.

Note 2. - If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ separated by a space.

Note 3. - See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard - DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

Note 4. - If the letter R is used, the performance-based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific route segment, route or area is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).

Note 5. - If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/ and/or DAT, as appropriate.

Note 6. - Information on navigation capability is provided to ATC for clearance and routing purposes.

Note 7. - Guidance material on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

DatalinkCommunicationCapabilityCode

Field Type 10a	Radiocommunication, navigation and approach aid equipment and capabilities 1 LETTER as follows:

DatalinkCommunicationCapabilityCode

	N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable OR S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1) AND/OR ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment and capabilities

	A GBAS landing system J7 CPDLC FANS 1/A
	B LPV (APV with SBAS) SATCOM (Iridium)
	C LORAN C K MLS
	D DME L ILS
	E1 FMC WPR ACARS M1 ATC SATVOICE
	E2 D-FIS ACARS (INMARSAT)
	E3 PDC ACARS M2 ATC SATVOICE (MTSAT)
	F ADF M3 ATC SATVOICE (Iridium)
	G GNSS. If any portion of the flight is planned O VOR
	   planned to be conducted under FR, it refers P1 CPDLC RCP 400 (*see Note 7*)
	   to GNSS receivers that comply with the P2 CPDLC RCP 240 (*see Note 7*)
	   requirements of Annex 10,Volume I (*See Note 2*) P3 SATVOICE RCP 400 (*see Note 7*)
	H HF RTF P4-P9 Reserved for RCP
	I Inertial navigation R PBN approved (*see Note 4*)
	J1 CPDLC ATN VDL Mode 2 T TACAN
	   (*see Note 3*) U UHF RTF
	J2 CPDLC FANS 1/A HFDL V VHF RTF
	J3 CPDLC FANS 1/A VDL W RVSM approved
	   Mode A X MNPS approved
	J4 CPDLC FANS 1/A VDL Y VHF with 8.33 kHz channel
	J5 CPDLC FANS 1/A spacing capability
	   SATCOM (INMARSAT) Z Other equipment carried or
	J6 CPDLC FANS 1/A other capabilities (*see Note 5*)
	   SATCOM (MTSAT)

	Note 1. - If the letter S is used, standard equipment is considered to be VHF RTF, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority. *Note 2. - If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ separated by a space.* *Note 3. - See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard - DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.* *Note 4. - If the letter R is used, the performance-based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific route segment, route or area is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).* *Note 5. - If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/ and/or DAT, as appropriate.* *Note 6. - Information on navigation capability is provided to ATC for clearance and routing purposes.* *Note 7. - Guidance material on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).*

DinghyCoverIndicator

B-2.34.8	Expression of Supplementary Information shall allow specification of the Dinghies on board, including: a) Number b) Capacity

DinghyCoverIndicator	
	c) Color of cover

EmergencyRadioCapabilityType	
B-2.34.3	Expression of Supplementary Information shall allow specification of the types of emergency radios carried on board, including at a minimum: a) UHF radio b) VHF radio c) Emergency Locator Transmitter (ELT)

LifeJacketType	
B-2.34.5	Expression of Supplementary Information shall allow specification of the characteristics of Life Jackets on board, including at a minimum: a) Light b) Fluorescence c) UHFradio d) VHF radio

NavigationCapabilityCode	
Field Type 10a	Radiocommunication, navigation and approach aid equipment and capabilities 1 LETTER as follows: N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable OR S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1) AND/OR ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment and capabilities

A	GBAS landing system	J7	CPDLC FANS 1/A
B	LPV (APV with SBAS)		SATCOM (Iridium)
C	LORAN C	K	MLS
D	DME	L	ILS
E1	FMC WPR ACARS	M1	ATC SATVOICE
E2	D-FIS ACARS		(INMARSAT)
E3	PDC ACARS	M2	ATC SATVOICE (MTSAT)
F	ADF	M3	ATC SATVOICE (Iridium)
G	GNSS. If any portion of the flight is planned	O	VOR
	planned to be conducted under FR, it refers	P1	CPDLC RCP 400 (*see Note 7*)
	to GNSS receivers that comply with the	P2	CPDLC RCP 240 (*see Note 7*)
	requirements of Annex 10,Volume I (*See Note 2*)	P3	SATVOICE RCP 400 (*see Note 7*)
H	HF RTF	P4-P9	Reserved for RCP
I	Inertial navigation	R	PBN approved (*see Note 4*)
J1	CPDLC ATN VDL Mode 2	T	TACAN
	(*see Note 3*)	U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL	W	RVSM approved
	Mode A	X	MNPS approved
J4	CPDLC FANS 1/A VDL	Y	VHF with 8.33 kHz channel
J5	CPDLC FANS 1/A		spacing capability
	SATCOM (INMARSAT)	Z	Other equipment carried or
J6	CPDLC FANS 1/A		other capabilities (*see Note 5*)
	SATCOM (MTSAT)		

NavigationCapabilityCode

	Note 1. - If the letter S is used, standard equipment is considered to be VHF RTF, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority. *Note 2. - If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ separated by a space.* *Note 3. - See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard - DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.* *Note 4. - If the letter R is used, the performance-based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific route segment, route or area is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).* *Note 5. - If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/ and/or DAT, as appropriate.* *Note 6. - Information on navigation capability is provided to ATC for clearance and routing purposes.* *Note 7. - Guidance material on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).*

PerformanceBasedNavigationCapabilityCode

Field Type 18-PBN	PBN/ Indication of RNAV and/or RNP capabilities. Include as many of the descriptors below, as apply to the flight, up to a maximum of 8 entries, i.e. a total of not more than 16 characters. **RNAV SPECIFICATIONS** A1 RNAV 10 (RNP 10) B1 RNAV 5 all permitted sensors B2 RNAV 5 GNSS B3 RNAV 5 DME/DME B4 RNAV 5 VOR/DME B5 RNAV 5 INS or IRS B6 RNAV 5 LORANC C1 RNAV 2 all permitted sensors C2 RNAV 2 GNSS C3 RNAV 2 DME/DME C4 RNAV 2 DME/DME/IRU D1 RNAV 1 all permitted sensors D2 RNAV 1 GNSS D3 RNAV 1 DME/DME D4 RNAV 1 DME/DME/IRU **RNP SPECIFICATIONS** L1 RNP 4 O1 Basic RNP 1 all permitted sensors O2 Basic RNP 1 GNSS O3 Basic RNP 1 DME/DME O4 Basic RNP 1 DME/DME/IRU S1 RNP APCH S2 RNP APCH with BAR-VNAV T1 RNP AR APCH with RF (special authorization required) T2 RNP AR APCH without RF (special authorization required) Combinations of alphanumeric characters not indicated above are reserved.

StandardCapabilitiesIndicator

Field Type 10a	Radiocommunication, navigation and approach aid equipment and capabilities

StandardCapabilitiesIndicator

	1 LETTER as follows: N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable OR S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (see Note 1) AND/OR ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment and capabilities

A   GBAS landing system
B   LPV (APV with SBAS)
C   LORAN C
D   DME
E1 FMC WPR ACARS
E2 D-FIS ACARS
E3 PDC ACARS
F   ADF
G   GNSS. If any portion of the flight is planned
     planned to be conducted under FR, it refers
     to GNSS receivers that comply with the
     requirements of Annex 10,Volume I (*See Note 2*)
H   HF RTF
I   Inertial navigation
J1 CPDLC ATN VDL Mode 2
    (*see Note 3*)
J2 CPDLC FANS 1/A HFDL
J3 CPDLC FANS 1/A VDL
    Mode A
J4 CPDLC FANS 1/A VDL
J5 CPDLC FANS 1/A
    SATCOM (INMARSAT)
J6 CPDLC FANS 1/A
    SATCOM (MTSAT)

J7 CPDLC FANS 1/A
    SATCOM (Iridium)
K   MLS
L   ILS
M1 ATC SATVOICE
    (INMARSAT)
M2 ATC SATVOICE (MTSAT)
M3 ATC SATVOICE (Iridium)
O   VOR
P1   CPDLC RCP 400 (*see Note 7*)
P2   CPDLC RCP 240 (*see Note 7*)
P3   SATVOICE RCP 400 (*see Note 7*)
P4-P9 Reserved for RCP
R   PBN approved (*see Note 4*)
T   TACAN
U   UHF RTF
V   VHF RTF
W   RVSM approved
X   MNPS approved
Y   VHF with 8.33 kHz channel
    spacing capability
Z   Other equipment carried or
    other capabilities (*see Note 5*)

   Note 1. - If the letter S is used, standard equipment is considered to be VHF RTF, VOR and ILS, unless another combination is prescribed by the appropriate ATS authority.

   Note 2. - If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ separated by a space.

   Note 3. - See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard - DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

   Note 4. - If the letter R is used, the performance-based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific route segment, route or area is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).

   Note 5. - If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/ and/or DAT, as appropriate.

   Note 6. - Information on navigation capability is provided to ATC for clearance and routing purposes.

   Note 7. - Guidance material on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).

SurveillanceCapabilityCode

Field Type 10b	Surveillance equipment and capabilities INSERT N if no surveillance equipment for the route to be flown is carried, or the equipment is unserviceable,

SurveillanceCapabilityCode

	OR
	
	ONE OR MORE of the following descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment and/or capabilities on board:
	
	SSR Modes A and C
	A Transponder - Mode A (4 digits - 4 096 codes)
	C Transponder - Mode A (4 digits - 4 096 codes) and Mode C
	
	SSR Modes S
	E Transponder - Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability
	H Transponder - Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability
	I Transponder - Mode S, including aircraft identification, but no pressure-altitude capability
	L Transponder - Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS-B) and enhanced surveillance capability
	P Transponder - Mode S, including pressure-altitude, but no aircraft identification capability
	S Transponder - Mode S, including both pressure-altitude and aircraft identification capability
	X Transponder - Mode S with neither aircraft identification nor pressure-altitude capability
	
	Note. - Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.
	
	    ADS-B
	    B1 ADS-B with dedicated 1 090 MHz ADS-B "out" capability
	    B2 ADS-B with dedicated 1 090 MHz ADS-B "out" and "in" capability
	    U1 ADS-B "out" capability using UAT
	    U2 ADS-B "out" and "in" capability using UAT
	    V1 ADS-B "out" capability using VDL Mode 4
	    V2 ADS-B "out" and "in" capability using VDL Mode 4
	
	    ADS-C
	    D1 ADS-C with FANS 1/A capabilities
	    G1 ADS-C with ATN capabilities
	
	Alphanumeric characters not indicated above are reserved.
	
	Note 1. - The RSP specification(s), if applicable, will be listed in Item 18 following the indicator SUR/. Guidance material on the application of performance-based surveillance, which prescribes RSP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869).
	Note 2. - Additional surveillance equipment or capabilities will be listed in Item 18 following the indicator SUR/, as required by the appropriate authority.

SurvivalEquipmentType

B-2.34.4	Expression of Supplementary Information shall allow specification of the types of Survival Capabilities on board, including at a minimum: a) Polar b) Desert c) Maritime d) Jungle

Cargo

DangerousGoods

AirWaybillNumber	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

DangerousGoods	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

ShippingInformation	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

Packaging

AllPackedInOne	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

CompatibilityGroup	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

DangerousGoodsDimensions	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

DangerousGoodsPackage	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

DangerousGoodsPackageGroup	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all

DangerousGoodsPackageGroup	
	items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

HazardClass	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

HazardDivision	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

RestrictedHazardClass	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

UnNumber	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

AircraftDangerousGoodsLimitation	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

PackingGroup	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

RadioactiveMaterials

CriticalSafetyIndex	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

RadioactiveMaterial	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

TransportIndex	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

RadioactiveMaterialCategory	
B-2.8	Dangerous Goods Information Expression of information regarding dangerous goods being carried on a flight shall support all items defined in the Technical Instructions for the Safe Transport of Dangerous Goods by Air (ICAO Document 9284), Part 7, Section 4.1.1.1.

Departure

Departure	

Field Type 13	Departure aerodrome and time
	
	Format: SINGLE HYPHEN [Departure aerodrome]* [Time]
	                                                     *
	Format: – [a] [b]
	
	Examples: -EHAM0730
	              -AFIL1625
	
	SINGLE HYPHEN
	
	(a) Departure aerodrome
	     4 LETTERS, being
	     the ICAO four-letter location indicator allocated to the departure aerodrome, as specified in Doc 7910, Location Indicators, or
	     ZZZZ if no ICAO location indicator has been allocated (see Note 1) or if the departure aerodrome is not known, or
	     AFIL if the flight plan has been filed in the air (see Note 2).
	
	     Note 1. - If ZZZZ is used, the name and location of the departure aerodrome is to be shown in the Other Information Field (see Field Type 18) if this Field Type is contained in the message.
	     Note 2. - If AFIL is used, the ATS unit from which supplementary flight data can be obtained is to be shown in the Other Information Field (Field Type 18).
	
	* This field shall be terminated here in message types CPL, EST, CDN and ACP. It shall be terminated here in message type RQP if the estimated off-block time is not known.
	
	(b) Time
	     4 NUMERICS giving
	     the estimated off-block time (EOBT) at the aerodrome in (a) in FPL, ARR, CHG, CNL, DLA and RQS messages and in RQP message, if known, or
	     the actual time of departure from the aerodrome in (a) in ALR, DEP and SPL messages, or
	     the actual or estimated time of departure from the first point shown in the Route Field (see

Departure	
	Field Type 15) in FPL messages derived from flight plans filed in the air, as shown by the letters AFIL in (a).

AirfileIndicator	
B-2.4.3	A departure aerodrome should allow for identification of a flight that has filed its flight plan while in the air, beginning its route description from a specified point en-route, and therefore may not have provided a departure aerodrome.

Emergency

FlightEmergency	

Field Type 5	Description of emergency
	
	Format : - [a] / [b] / [c]
	
	Example: -ALERFA/EINNZQZX/REPORT OVERDUE
	
	SINGLE HYPHEN
	
	(a) Phase of emergency
	    or INCERFA if an uncertainty phase,
	    or ALERFA if an alert phase,
	        DETRESFA if a distress phase
	
	      has been declared in respect of the aircraft concerned
	
	OBLIQUE STROKE
	
	(b) Originator of message
	    8 LETTERS, being the 4-letter ICAO location indicator plus the 3-letter designator of the ATS unit originating the message followed by the letter X or, if applicable, the one-letter
	
	OBLIQUE STROKE
	
	(c) Nature of emergency
	    SHORT PLAIN-LANGUAGE TEXT, as necessary to explain the nature of the emergency, with natural spaces between the words.

LastContact	

Field Type 20	Alerting search and rescue information
	
	Format: - [ ] (sp) [ ] (sp)*(sp) [ ]
	                (*EIGHT elements in all)
	
	Example: -USAF LGGGZAZX 1022 126.7 GN 1022 PILOT REPORT OVER NDB ATS UNITS ATHENS FIR ALERTED NIL
	
	This field consists of the following specified sequence of elements separated by spaces.
	Any information not available should be shown as 'NIL' or "NOT KNOWN" and not simply omitted.
	
	SINGLE HYPHEN
	
	(a) Identity of operator
	    The ICAO two-letter designator of the aircraft operating agency or, if this has not been assigned, the name of the operator.

LastContact	
	(b) Unit which made last contact 6 LETTERS consisting of the 4-letter ICAO location indicator followed by the 2-letter designator which together identify the ATS unit which made the last two-way contact or, if these are not available, some other description of the unit. (c) Time of last two-way contact 4 NUMERICS giving the time of the last two-way contact. (d) Frequency of last contact NUMERICS as necessary giving the transmitting/receiving frequency of the last contact. (e) Last reported position The last reported position expressed in one of the data conventions of 1.6 of this Appendix followed by the time over that position. (f) Method of determining last known position Plain-language text as necessary. (g) Action taken by reporting unit Plain-language text as necessary. (h) Other pertinent information Plain-language text as necessary.

Field Type 21	Radio failure information Format: - [ ] (sp) [ ] (sp) * (sp) [ ] (*SIX elements in all) Example: -1232 121.3 CLA 1229 TRANSMITTING ONLY 126.7 LAST POSITION CONFIRMED BY RADAR This field consists of the following specified sequence of elements preceded by a single hyphen and separated by spaces. Any information not available is to be shown as "NIL" or "NOT KNOWN" and not simply omitted. SINGLE HYPHEN (a) Time of last two-way contact 4 NUMERICS giving the time of the last two-way contact with the aircraft. (b) Frequency of last contact NUMERICS as necessary giving the transmitting/receiving frequency of the last two-way contact with the aircraft. (c) Last reported position The last reported position expressed in one of the data conventions of 1.6 of this Appendix. (d) Time at last reported position 4 NUMERICS giving the time at the last reported position. (e) Remaining COM capability LETTERS as necessary identifying the remaining COM capability of the aircraft, if known, using the convention of Field Type 10, or in plain language. (f) Any necessary remarks Plain-language text as necessary.

LastPositionReport

| Field Type 20 | Alerting search and rescue information

Format: - [ ] (sp) [ ] (sp)*(sp) [ ]
　　　　　　　　(*EIGHT elements in all)

Example: -USAF LGGGZAZX 1022 126.7 GN 1022 PILOT REPORT OVER NDB ATS UNITS ATHENS FIR ALERTED NIL

This field consists of the following specified sequence of elements separated by spaces.
Any information not available should be shown as 'NIL" or "NOT KNOWN" and not simply omitted.

SINGLE HYPHEN

(a) Identity of operator
　　　The ICAO two-letter designator of the aircraft operating agency or, if this has not been assigned, the name of the operator.

(b) Unit which made last contact
　　　6 LETTERS consisting of the 4-letter ICAO location indicator followed by the 2-letter designator which together identify the ATS unit which made the last two-way contact or, if these are not available, some other description of the unit.

(c) Time of last two-way contact
　　　4 NUMERICS giving the time of the last two-way contact.

(d) Frequency of last contact
　　　NUMERICS as necessary giving the transmitting/receiving frequency of the last contact.

(e) Last reported position
　　　The last reported position expressed in one of the data conventions of 1.6 of this Appendix followed by the time over that position.

(f) Method of determining last known position
　　　Plain-language text as necessary.

(g) Action taken by reporting unit
　　　Plain-language text as necessary.

(h) Other pertinent information
　　　Plain-language text as necessary. |
|---|---|

| Field Type 21 | Radio failure information

Format: - [ ] (sp) [ ] (sp) * (sp) [ ]
　　　　　　　　　(*SIX elements in all)

Example:　　-1232 121.3 CLA 1229 TRANSMITTING ONLY 126.7 LAST POSITION CONFIRMED BY RADAR

This field consists of the following specified sequence of elements preceded by a single hyphen and separated by spaces. Any information not available is to be shown as "NIL" or "NOT KNOWN" and not simply omitted.

SINGLE HYPHEN

(a) Time of last two-way contact
　　　4 NUMERICS giving the time of the last two-way contact with the aircraft.

(b) Frequency of last contact |
|---|---|

NUMERICS as necessary giving the transmitting/receiving frequency of the last two-way contact with the aircraft.

(c) Last reported position

The last reported position expressed in one of the data conventions of 1.6 of this Appendix.

(d) Time at last reported position

4 NUMERICS giving the time at the last reported position.

(e) Remaining COM capability

LETTERS as necessary identifying the remaining COM capability of the aircraft, if known, using the convention of Field Type 10, or in plain language.

(f) Any necessary remarks

Plain-language text as necessary.

RadioCommunicationFailure

Field Type 21	Radio failure information

	Format: - [ ] (sp) [ ] (sp) * (sp) [ ]
	                              (*SIX elements in all)
	
	Example: -1232 121.3 CLA 1229 TRANSMITTING ONLY 126.7 LAST POSITION CONFIRMED BY RADAR
	
	This field consists of the following specified sequence of elements preceded by a single hyphen and separated by spaces. Any information not available is to be shown as "NIL" or "NOT KNOWN" and not simply omitted.
	
	SINGLE HYPHEN
	
	(a) Time of last two-way contact
	    4 NUMERICS giving the time of the last two-way contact with the aircraft.
	
	(b) Frequency of last contact
	    NUMERICS as necessary giving the transmitting/receiving frequency of the last two-way contact with the aircraft.
	
	(c) Last reported position
	    The last reported position expressed in one of the data conventions of 1.6 of this Appendix.
	
	(d) Time at last reported position
	    4 NUMERICS giving the time at the last reported position.
	
	(e) Remaining COM capability
	    LETTERS as necessary identifying the remaining COM capability of the aircraft, if known, using the convention of Field Type 10, or in plain language.
	
	(f) Any necessary remarks
	    Plain-language text as necessary.

EmergencyPhase

Field Type 5a	Phase of emergency

	or INCERFA if an uncertainty phase,
	or ALERFA if an alert phase,
	     DETRESFA if a distress phase
	
	     has been declared in respect of the aircraft concerned

EnRoute

AltitudeInTransition	
Field Type 14c	Cleared level F followed by 3 NUMERICS, or S followed by 4 NUMERICS, or See data conventions in 1.6 of this Appendix. A followed by 3 NUMERICS, or M followed by 4 NUMERICS giving the cleared level at which the aircraft will cross the boundary point, if in level cruising flight, or the cleared level * This field will be terminated here if the aircraft will cross the boundary point in level cruising flight.

BoundaryCrossing	

Field Type 14	Estimate data
	 * Format: [a] / [b][c][d][e]
	
	Examples: -LN/1746F160
	          -CLN/1831F240F180A
	          -5420N05000W/0417F290
	          -LNX/1205F160F200B
	          -ZD126028/0653F130
	
	SINGLE HYPHEN
	
	(a) Boundary point (see Note 1)
	     The BOUNDARY POINT expressed either by a designator consisting of 2 to 5 characters, in geographical coordinates, in abbreviated geographical coordinates, or by bearing and distance from a significant point.
	
	     Note 1. - This point may be an agreed point located close to, rather than on, the FIR boundary.
	     Note 2. - See 1.6 for data conventions.
	
	OBLIQUE STROKE
	
	(b) Time at boundary point
	     4 NUMERICS giving the estimated time at the boundary point.
	
	(c) Cleared level
	     F followed by 3 NUMERICS, or
	     S followed by 4 NUMERICS, or See data conventions in 1.6 of this Appendix.
	     A followed by 3 NUMERICS, or
	     M followed by 4 NUMERICS
	
	     giving the cleared level at which the aircraft will cross the boundary point, if in level cruising flight, or the cleared level
	
	* This field will be terminated here if the aircraft will cross the boundary point in level cruising flight.
	
	(d) Supplementary crossing data
	     A LEVEL, expressed as in (c), at or above which or at or below which (see (e)) the aircraft will cross the boundary point.

BoundaryCrossing	

	(e) Crossing condition
	        1 LETTER as follows:
	        A if the aircraft will cross the boundary point at or above the level in (d), or
	        B if the aircraft will cross the boundary point at or below the level in (d).

EnRoute	
Modeling	Construct used for the data modeling purposes.

BoundaryCrossingCondition	
Field Type 14e	Crossing condition 1 LETTER as follows: A if the aircraft will cross the boundary point at or above the level in (d), or B if the aircraft will cross the boundary point at or below the level in (d).

FlightData

Flight	
Modeling	Construct used for the data modeling purposes.

Flight	
Modeling	Construct used for the data modeling purposes.

FlightConstraint	
B-2.38	General Flight Constraints A general flight constraint is intended to express a constraint on the flight that cannot be associated with a specific trajectory point, either because it is not relevant to only a specific point or because it is not possible to identify the point. Expression of a general flight constraint shall allow for identification of a reference to a published constraint; description of applicability; and description of the impact of the constraint on the flight. If a reference is provided, then the descriptive data is optional. If there is no reference to published information, then descriptive data is required. As with other constraints, reference to a published constraint should allow reference to a NOTAM; advisory; or AIXM identifier as necessary. Description of the applicability shall accommodate a free-text description. Description of the impact of the constraint shall accommodate a free-text description

FlightIdentification	
B-2.6.1	An Aircraft Identification for purposes of communication with Air Traffic Services shall allow any of the following: a) The ICAO designator for the aircraft operating agency as defined in ICAO Doc. 8585 followed by the flight identification (e.g. KLM511, NGA213, JTR25);

FlightIdentification	
	b) The nationality or common mark and registration mark of the aircraft consistent with Annex 7 (e.g. EIAKO, 4XBCD, N2567GA); or
	c) A two to seven character identifier as specified by an ATM Service Provider.

RouteTrajectoryGroupContainer	
Modeling	Construct used for the data modeling purposes.

SpecialHandlingReasonCodeList	
Modeling	Construct used for the data modeling purposes.

SupplementaryData	
B-2.34	Supplementary Information
	Expression of Supplementary Information shall allow specification of fuel endurance expressed as hours and minutes of flying time.
	Expression of Supplementary Information shall allow specification of an integer number of persons on board.
	Expression of Supplementary Information shall allow specification of the types of emergency radios carried on board, including at a minimum:
	a) UHF radio b) VHF radio c) Emergency Locator Transmitter (ELT)
	Expression of Supplementary Information shall allow specification of the types of Survival Capabilities on board, including at a minimum:
	a) Polar b) Desert c) Maritime d) Jungle
	Expression of Supplementary Information shall allow specification of the characteristics of Life Jackets on board, including at a minimum:
	a) Light b) Fluorescence c) UHFradio d) VHF radio
	Expression of Supplementary Information shall allow specification of the aircraft color and markings as free text per B-2.30.
	Expression of Supplementary Information shall allow specification of the name of the pilot in command as free text per B-2.30.
	Expression of Supplementary Information shall allow specification of the Dinghies on board, including:
	a) Number b) Capacity c) Color of cover

SupplementaryData	
	Expression of Supplementary Information shall allow specification of clarifying remarks and other survival equipment carried that is not specified above.

SupplementaryDataSourceChoice	
B-2.32	Supplementary Information Source A Supplementary Information Source is intended to identify where search and rescue Supplementary information for a flight can be obtained. A Supplementary Information Source can be identified using an Addressee Indicator (from Doc. 7910 + Doc. 8585) for an ATS unit; an AFTN address; FF-ICE Participant identification per B-2.28; or appropriate contact information per B-2.12.

SpecialHandlingReasonCode	
B-2.20	Special Handling Expression of Special Handling designators shall at a minimum support the following categories. The abbreviated designators shown (e.g. "ALTRV") are for ease of traceability to the PANS-ATM special handling categories, but are not a required part of the FF-ICE data item. a) ALTRV: for a flight operated in accordance with an altitude reservation; b) ATFMX: for a flight approved for exemption from ATFM measures by the appropriate ATS authority; c) FFR: fire-fighting; d) FLTCK: flight check for calibration of navaids; e) HAZMAT: for a flight carrying hazardous material; f) HEAD: a flight with Head of State status; g)HOSP: for a medical flight declared by medical authorities; h) HUM: for a flight operating on a humanitarian mission; i) MARSA: for a flight for which a military entity assumes responsibility for separation of military aircraft; j) MEDEVAC: for a life critical medical emergency evacuation; k) NONRVSM: for a non-RVSM capable flight intending to operate in RVSM airspace; l) SAR: for a flight engaged in a search and rescue mission; and m) STATE: for a flight engaged in military, customs or police services.

TypeOfFlight	
B-2.19	Type of Flight Expression of type of flight shall be traceable to one of the following: a) Scheduled Air Transport; b) Non-Scheduled Air Transport; c) General Aviation; d) Military; e) Other.

FlightRouteTrajectory

Constraints

LevelConstraint	
B-3.4.4	Level Constraint A level constraint shall be able to identify: a) the constrained level (expressed as altitude or flight level per B-2.1);

LevelConstraint	
	b) the type of constraint (at, at or above, at or below, or between 2 levels);
	c) whether the change to the level is to commence at or complete by the start point of the Route/Trajectory Element.

RouteTrajectoryConstraint	
B-3.4	Route/Trajectory Constraint
	Each Route/Trajectory Element may contain one or more constraints. Each constraint will specify a Speed, Level, or Time constraint. Each constraint may include identification of the source of the constraint and a textual description of the constraint.
	Each Route/Trajectory Constraint may contain an indication that the constraint is relevant during the arrival or the departure phase.
	Speed Constraint A speed constraint shall be able to identify: a) the constrained speed as an indicated airspeed; b) the type of constraint (at, at or above, at or below, or between 2 speeds); c) whether the change to the speed is to commence at or complete by the start point of the Route/Trajectory Element.
	Level Constraint A level constraint shall be able to identify: a) the constrained level (expressed as altitude or flight level per B-2.1); b) the type of constraint (at, at or above, at or below, or between 2 levels); c) whether the change to the level is to commence at or complete by the start point of the Route/Trajectory Element.
	Time Constraint A time constraint shall be able to identify: a) the constrained time (expressed as an absolute time per B-2.22); and b) the type of constraint (at, at or before, at or after, or between 2 times).

SpeedConstraint	
B-3.4.3	Speed Constraint
	A speed constraint shall be able to identify: a) the constrained speed as an indicated airspeed; b) the type of constraint (at, at or above, at or below, or between 2 speeds); c) whether the change to the speed is to commence at or complete by the start point of the Route/Trajectory Element.

TimeConstraint	
B-3.4.5	Time Constraint
	A time constraint shall be able to identify: a) the constrained time (expressed as an absolute time per B-2.22); and b) the type of constraint (at, at or before, at or after, or between 2 times).

DepartureOrArrivalIndicator	
B-3.4.2	Each Route/Trajectory Constraint may contain an indication that the constraint is relevant during the arrival or the departure phase.

LevelCondition	
B-3.4.4	Level Constraint A level constraint shall be able to identify: a) the constrained level (expressed as altitude or flight level per B-2.1); b) the type of constraint (at, at or above, at or below, or between 2 levels); c) whether the change to the level is to commence at or complete by the start point of the Route/Trajectory Element.

SpeedCondition	
B-3.4.3	Speed Constraint A speed constraint shall be able to identify: a) the constrained speed as an indicated airspeed; b) the type of constraint (at, at or above, at or below, or between 2 speeds); c) whether the change to the speed is to commence at or complete by the start point of the Route/Trajectory Element.

TimeCondition	
B-3.4.5	Time Constraint A time constraint shall be able to identify: a) the constrained time (expressed as an absolute time per B-2.22); and b) the type of constraint (at, at or before, at or after, or between 2 times).

RouteChanges

CruiseClimbStart	
B-3.3.4	Cruise Climb A Route/Trajectory Element may contain a Cruise Climb. The Cruise Climb must be indicated to start at the point associated with the Element. A Cruise Climb may be associated with a Route Element, Expanded Route Element, or Trajectory Element.

CruisingLevelChange	
B-3.3.2	Level Change A Route/Trajectory Element may contain a change in cruising level (expressed as altitude or flight level per B-2.1). The Level Change will also specify whether the change is expected to begin or to complete at the position associated with the Element. A Level Change may be associated with a Route Element, Expanded Route Element, or Trajectory Element.

CruisingSpeedChange	
B-3.3.3	Speed Change A Route/Trajectory Element may contain a change in cruising speed (expressed per B-2.10.15). The Speed Change will also specify whether the change is expected to begin or to complete at the position associated with the Element. A Speed Change may be associated with a Route Element, Expanded Route Element, or Trajectory Element.

RouteChange	
B-3.3	Requested Change A Requested Change indicates Operator intent to change altitude, speed, and/or flight rules at the start point of a Route/Trajectory Element. Each Route/Trajectory Element may contain a requested

RouteChange	
	change; which may specify speed, level, and/or flight rules.
	Level Change
	A Route/Trajectory Element may contain a change in cruising level (expressed as altitude or flight level per B-2.1). The Level Change will also specify whether the change is expected to begin or to complete at the position associated with the Element. A Level Change may be associated with a Route Element, Expanded Route Element, or Trajectory Element.
	Speed Change
	A Route/Trajectory Element may contain a change in cruising speed (expressed per B-2.10.15). The Speed Change will also specify whether the change is expected to begin or to complete at the position associated with the Element. A Speed Change may be associated with a Route Element, Expanded Route Element, or Trajectory Element.
	Cruise Climb
	A Route/Trajectory Element may contain a Cruise Climb. The Cruise Climb must be indicated to start at the point associated with the Element. A Cruise Climb may be associated with a Route Element, Expanded Route Element, or Trajectory Element.
	Change in Flight Rules
	A Route/Trajectory Element may contain a change in flight rules (to IFR or to VFR). The Change in Flight Rules must be indicated to start at the point associated with the Element. A Change in Flight Rules may be associated with a Route Element or Expanded Route Element, but not with a Trajectory Element.

Activation	
B-3.3.2	Level Change
	A Route/Trajectory Element may contain a change in cruising level (expressed as altitude or flight level per B-2.1). The Level Change will also specify whether the change is expected to begin or to complete at the position associated with the Element. A Level Change may be associated with a Route Element, Expanded Route Element, or Trajectory Element.

B-3.3.3	Speed Change
	A Route/Trajectory Element may contain a change in cruising speed (expressed per B-2.10.15). The Speed Change will also specify whether the change is expected to begin or to complete at the position associated with the Element. A Speed Change may be associated with a Route Element, Expanded Route Element, or Trajectory Element.

AtOrAboveAltitudeIndicator	
Field Type 15c6	Cruise climb
	The letter C followed by an oblique stroke; then the point at which cruise climb is planned to start, expressed exactly as in (c3) above, followed by an oblique stroke; then the speed to be maintained during cruise climb expressed exactly as in (a) above followed by the two levels defining the layer to be occupied during cruise climb; each level expressed as in (b) above, or the level above which cruise climb

RouteTrajectory

ElapsedTimeLocationChoice	
B-3.7.7	Elapsed Time List
	A sequenced list of elapsed times to significant points or FIR boundaries. Only to be provided when a trajectory is not provided.

EnRouteDelay	
B-3.6	En Route Delay An En Route Delay identifies a time duration for which a flight is expected to loiter; i.e. the flight will interupt its progression along the route at the associated point and expect to request resumption of its progression along the filed route after the indicated duration. An En Route Delay may be associated with a specified route point, meaning that the delay starts and ends that that point. An En Route Delay may be associated with a specified route Element, meaning that the delay starts at the beginning of the Element and ends at the end of the Element. Expression of an En Route Delay shall include an indication of the type and reason for the delay.

EstimatedElapsedTime	
B-3.7.7	Elapsed Time List A sequenced list of elapsed times to significant points or FIR boundaries. Only to be provided when a trajectory is not provided.

FlightRouteInformation	
B-3.1	Flight Route/Trajectory Group A Flight Route / Trajectory Group shall support the data elements and relationships shown in Figure B- 1-Route/Trajectory Group A Flight Route / Trajectory Group shall be identified as one of the following, consistent with the definitions in Chapter 12: a) Desired; b) Filed; c) Negotiating; d) Agreed; e) Ranked. Aircraft Take-Off Mass Predicted take-off mass shall be allowed for each Route / Trajectory Group submitted. Take-off mass is associated with the Route/Trajectory since each contemplated route/trajectory could have different fuel loads. There is no condition under which take-off mass should be required. Requested Cruising Speed The expected cruise speed shall be required for each Route/Trajectory group submitted. If there are no requested changes or constraints along the route, this will be the sole cruising speed used for estimation. Requested Cruising Level The expected cruising level shall be required for each Route/Trajectory group submitted. If there are no requested changes or constraints along the route, this will be the sole cruising level used for estimation. Total Estimated Elapsed Time The total estimated elapsed time from take-off to arrival (see definition in PANS-ATM Chapter 1) should be provided when a complete set of trajectory points are not included.

MeteorologicalData	
B-3.5.7	Wind Vector The assumed wind vector at the Trajectory Point.

B-3.5.9	Temperature
	The assumed temperature at the Trajectory Point.

PerformanceProfile	
B-3.7.2	Performance Profile

Point4DTimeChoice	
B-3.5.3	4DT Time
	The predicted time at the Trajectory Point, expressed as a relative time since the start of the trajectory, or as an absolute time, using format and content defined in B-2.22.

ProfilePoint	
B-3.7.4	A performance profile is expressed as a sequence of profile points each containing: distance, time duration, flight level or altitude, and true airspeed. Climb profiles begin at takeoff with distance and time expressed relative to the takeoff point. Climb profiles end at the maximum operational cruise altitude for the specific route/trajectory.

RouteDesignatorToNextElementChoice	
B-3.2.6	Route to Next Element
	An indication that route to the next element is either:
	a) Direct b) On an ATS Route c) Unspecified
	When on an ATS Route, a route identifier as described in B-2.3 is included.

RouteTrajectoryElement	
B-3.2	Route/Trajectory Element
	A Route/Trajectory Element defines a portion of the route and can be at one of three levels as described below:
	a) A Route Element defined by a Significant Point and the ATS Route (or direct route) to be followed until a change in route. b) An Expanded Route Element defined by a Significant point, and the ATS Route (or direct route) to be followed until the next Significant Point, which may be along the same ATS Route. c) A Trajectory Element defined by a geographic point and the ATS Route (or direct route) followed until the next trajectory point.
	Along-Route Distance Each Route/Trajectory Element shall include the along-route distance of the start point of that element. Along-Route Distance may be specified in units of nautical miles or kilometers.
	Modified Route Indicator Each Route/Trajectory Element shall allow indication that the element is different from the operator submitted route.
	Route Truncation Indicator Each Route/Trajectory Element shall allow indication that the route provided is incomplete and ends at the current element. When a Route Truncation Indicator is set, the following conditions should hold:

RouteTrajectoryElement

	a) A Route Element Start Point (B-3.2.5) should be included; b) A Route To Next Element (B-3.2.6) should not be included; and c) There should be no additional Route/Trajectory Elements. Route Element Start Point A Route Element Start Point shall be specified as a Significant Point as defined in PANS-ATM Chapter 1, or as an Aerodrome as specified in B-2.4. Route to Next Element An indication that route to the next element is either: a) Direct b) On an ATS Route c) Unspecified When on an ATS Route, a route identifier as described in B-2.3 is included.

RouteTrajectoryGroup

B-3.1	Flight Route/Trajectory Group A Flight Route / Trajectory Group shall support the data elements and relationships shown in Figure B- 1-Route/Trajectory Group A Flight Route / Trajectory Group shall be identified as one of the following, consistent with the definitions in Chapter 12: a) Desired; b) Filed; c) Negotiating; d) Agreed; e) Ranked. Aircraft Take-Off Mass Predicted take-off mass shall be allowed for each Route / Trajectory Group submitted. Take-off mass is associated with the Route/Trajectory since each contemplated route/trajectory could have different fuel loads. There is no condition under which take-off mass should be required. Requested Cruising Speed The expected cruise speed shall be required for each Route/Trajectory group submitted. If there are no requested changes or constraints along the route, this will be the sole cruising speed used for estimation. Requested Cruising Level The expected cruising level shall be required for each Route/Trajectory group submitted. If there are no requested changes or constraints along the route, this will be the sole cruising level used for estimation. Total Estimated Elapsed Time The total estimated elapsed time from take-off to arrival (see definition in PANS-ATM Chapter 1) should be provided when a complete set of trajectory points are not included.

SpeedSchedule

B-3.7.6	Speed Schedule Aircraft performance may be provided in the form of a climb and a descent speed schedule. Each speed schedule is comprised of a target Indicated Airspeed and Mach representing speed targets for the flight in transition assuming no flight-specific constraints.

TrajectoryPoint4D	
B-3.5	Trajectory Point A Trajectory Point may be specified as the start point of a Route/Trajectory Element. Note that a Trajectory Point may be specified along with a Route Element Start Point, in which case it is the trajectory point associated with the start of a Route Element or Expanded Route Element. If specified without a Route Element Start Point then it is for a trajectory Element that is along a route Element but not does not begin at the start of the route Element. Trajectory Point Property Each Trajectory Point can indicate the flight events of interest that occur at that point, including all of the events identified in Table B- 1. Each Trajectory Point Property shall have the ability to include reference data and a textual description. 4DT Geographic Position The position on the earth, expressed as a latitude/longitude per B-2.2. 4DT Time The predicted time at the Trajectory Point, expressed as a relative time since the start of the trajectory, or as an absolute time, using format and content defined in B-2.22. 4DT Level The predicted level at the Trajectory Point, expressed as an altitude level using the format and content defined in B-2.1. Predicted Airspeed The predicted true airspeed at the Trajectory Point, expressed using the format and content defined in B-2.10.15. Predicted Groundspeed The predicted groundspeed at the Trajectory Point, in knots or kilometers per hour. Wind Vector The assumed wind vector at the Trajectory Point. Assumed Altimeter Setting The assumed altimeter setting at the Trajectory Point. Temperature The assumed temperature at the Trajectory Point.

TrajectoryPointProperty	
B-3.5.10	Trajectory Point Property Each Trajectory Point can indicate the flight events of interest that occur at that point, including all of the events identified in Table B- 1. Each Trajectory Point Property shall have the ability to include reference data and a textual description.

TrajectoryPointReference	
B-3.5.10	Trajectory Point Property Each Trajectory Point can indicate the flight events of interest that occur at that point, including all of the events identified in Table B- 1. Each Trajectory Point Property shall have the ability to include reference data and a textual description.

EnRouteDelayType	
B-3.6.4	Expression of an En Route Delay shall include an indication of the type and reason for the delay.

FlightRules	
B-3.3.5	Change in Flight Rules A Route/Trajectory Element may contain a change in flight rules (to IFR or to VFR). The Change in Flight Rules must be indicated to start at the point associated with the Element. A Change in Flight Rules may be associated with a Route Element or Expanded Route Element, but not with a Trajectory Element.

FlightRulesCategory	
B-2.7	Flight Rules A Flight Rules designator shall allow communication of the following types of flight rules: a) Intention to operate the entire flight under the IFR; b) Intention to operate the entire flight under the VFR; c) Intention to operate initially under the IFR, followed by one or more subsequent changes of flight rules; or d) Intention to operate initially under the VFR, followed by one or more subsequent changes of flight rules.

ModifiedRouteItemIndicator	
B-3.2.3	Modified Route Indicator Each Route/Trajectory Element shall allow indication that the element is different from the operator submitted route.

OtherRouteDesignator	
B-3.2.6	Route to Next Element An indication that route to the next element is either: a) Direct b) On an ATS Route c) Unspecified When on an ATS Route, a route identifier as described in B-2.3 is included.

RouteTruncationIndicator	
B-3.2.4	Route Truncation Indicator Each Route/Trajectory Element shall allow indication that the route provided is incomplete and ends at the current element. When a Route Truncation Indicator is set, the following conditions should hold: a) A Route Element Start Point (B-3.2.5) should be included; b) A Route To Next Element (B-3.2.6) should not be included; and c) There should be no additional Route/Trajectory Elements.

TrajectoryPointPropertyType	
B-3.5.10	Trajectory Point Property Each Trajectory Point can indicate the flight events of interest that occur at that point, including all of the events identified in Table B- 1. Each Trajectory Point Property shall have the ability to include reference data and a textual description.

RankedTrajectory

RankedTrajectory	
B-3.1.2	A Flight Route / Trajectory Group shall be identified as one of the following, consistent with the definitions in Chapter 12: a) Desired; b) Filed; c) Negotiating; d) Agreed; e) Ranked.

RankedTrajectoryIdentifier	
B-3.1.2	A Flight Route / Trajectory Group shall be identified as one of the following, consistent with the definitions in Chapter 12: a) Desired; b) Filed; c) Negotiating; d) Agreed; e) Ranked.

Base

Address

ContactInformation	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.

NetworkChoice	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.

OnlineContact	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.
B-2.13	AFTN Address An address in accordance with the PANS-ATM Section 11.2.1.2.3 and Annex 10, volume 2.

PostalAddress	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.

TelephoneContact	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.

TextAddress	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.
B-2.13	AFTN Address An address in accordance with the PANS-ATM Section 11.2.1.2.3 and Annex 10, volume 2.

TextCity	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.

TextCountryCode	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.

TextCountryName	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.

TextPhone	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.

TelecomNetworkType	
B-2.12	Contact Information The expression of contact information shall allow for name, phone number, email, and/or physical address.
B-2.13	AFTN Address An address in accordance with the PANS-ATM Section 11.2.1.2.3 and Annex 10, volume 2.

AeronauticalReference

AerodromeName	
B-2.4.2	The specification of an Aerodrome shall allow identification of an aerodrome that has no Doc. 7910 location identifier. For an aerodrome without a Doc. 7910 identifier, the data specification shall allow a name and/or a geographical position (per B-2.2.2) to be included.

AerodromeReference	
B-2.4	Aerodrome The specification of an Aerodrome shall allow use of an appropriate location identifier per ICAO Doc. 7910. The specification of an Aerodrome shall allow identification of an aerodrome that has no Doc. 7910 location identifier. For an aerodrome without a Doc. 7910 identifier, the data specification shall allow a name and/or a geographical position (per B-2.2.2) to be included. A departure aerodrome should allow for identification of a flight that has filed its flight plan while in the air, beginning its route description from a specified point en-route, and therefore may not have provided a departure aerodrome.

AirspaceDesignator	
B-2.32.2	A Supplementary Information Source can be identified using an Addressee Indicator (from Doc. 7910 + Doc. 8585) for an ATS unit; an AFTN address; FF-ICE Participant identification per B-2.28; or appropriate contact information per B-2.12.

AtcUnitName	
Field Type 20b	Unit which made last contact 6 LETTERS consisting of the 4-letter ICAO location indicator followed by the 2-letter designator which together identify the ATS unit which made the last two-way contact or, if these are not available, some other description of the unit.

AtcUnitReference	
B-2.32.2	A Supplementary Information Source can be identified using an Addressee Indicator (from Doc. 7910 + Doc. 8585) for an ATS unit; an AFTN address; FF-ICE Participant identification per B-2.28; or appropriate contact information per B-2.12.

DesignatedPoint	
B-2.2	Position The expression of an aircraft position (or predicted position) shall allow any of the forms described in PANS-ATM Appendix 3, Section 1.6.3. The expression of position as a latitude/longitude should be with respect to the WGS-84 ellipsoidal earth. The expression of an aircraft position shall allow varying precision to be used, appropriate to the operational use of the data.

DesignatedPointDesignator	
B-2.2	Position The expression of an aircraft position (or predicted position) shall allow any of the forms described in PANS-ATM Appendix 3, Section 1.6.3. The expression of position as a latitude/longitude should be with respect to the WGS-84 ellipsoidal earth.

DesignatedPointDesignator	
	The expression of an aircraft position shall allow varying precision to be used, appropriate to the operational use of the data.

GeographicalPosition	
B-2.2	Position The expression of an aircraft position (or predicted position) shall allow any of the forms described in PANS-ATM Appendix 3, Section 1.6.3. The expression of position as a latitude/longitude should be with respect to the WGS-84 ellipsoidal earth. The expression of an aircraft position shall allow varying precision to be used, appropriate to the operational use of the data.

IataAerodromeDesignator	
B-2.4	Aerodrome The specification of an Aerodrome shall allow use of an appropriate location identifier per ICAO Doc. 7910. The specification of an Aerodrome shall allow identification of an aerodrome that has no Doc. 7910 location identifier. For an aerodrome without a Doc. 7910 identifier, the data specification shall allow a name and/or a geographical position (per B-2.2.2) to be included. A departure aerodrome should allow for identification of a flight that has filed its flight plan while in the air, beginning its route description from a specified point en-route, and therefore may not have provided a departure aerodrome.

LatLongPos	
Modeling	Construct used for the data modeling purposes.

LatLongPosList	
Modeling	Construct used for the data modeling purposes.

LocationIndicator	
B-2.32.2	A Supplementary Information Source can be identified using an Addressee Indicator (from Doc. 7910 + Doc. 8585) for an ATS unit; an AFTN address; FF-ICE Participant identification per B-2.28; or appropriate contact information per B-2.12.

Longitude	
B-3.7.7	Elapsed Time List A sequenced list of elapsed times to significant points or FIR boundaries. Only to be provided when a trajectory is not provided.

Navaid	
B-2.2	Position The expression of an aircraft position (or predicted position) shall allow any of the forms described in PANS-ATM Appendix 3, Section 1.6.3. The expression of position as a latitude/longitude should be with respect to the WGS-84 ellipsoidal

Navaid	
	earth.
	The expression of an aircraft position shall allow varying precision to be used, appropriate to the operational use of the data.

NavaidDesignator	
B-2.2	Position
	The expression of an aircraft position (or predicted position) shall allow any of the forms described in PANS-ATM Appendix 3, Section 1.6.3.
	The expression of position as a latitude/longitude should be with respect to the WGS-84 ellipsoidal earth.
	The expression of an aircraft position shall allow varying precision to be used, appropriate to the operational use of the data.

RelativePoint	
B-2.2	Position
	The expression of an aircraft position (or predicted position) shall allow any of the forms described in PANS-ATM Appendix 3, Section 1.6.3.
	The expression of position as a latitude/longitude should be with respect to the WGS-84 ellipsoidal earth.
	The expression of an aircraft position shall allow varying precision to be used, appropriate to the operational use of the data.

RestrictedAirspaceDesignator	
Modeling	Construct used for the data modeling purposes.

RestrictedRouteDesignator	
Modeling	Construct used for the data modeling purposes.

RestrictedRunwayDirectionDesignator	
Modeling	Construct used for the data modeling purposes.

RouteDesignator	
B-2.3.1	The expression of a route identifier shall allow for the specification of an ATS Route, Standard Departure Route, and Standard Arrival Route as described in Appendices 1 and 3 of PANS-ATM.

RunwayDirectionDesignator	
B-2.4	Aerodrome
	The specification of an Aerodrome shall allow use of an appropriate location identifier per ICAO Doc. 7910.
	The specification of an Aerodrome shall allow identification of an aerodrome that has no Doc. 7910 location identifier. For an aerodrome without a Doc. 7910 identifier, the data specification shall allow a name and/or a geographical position (per B-2.2.2) to be included.

RunwayDirectionDesignator	
	A departure aerodrome should allow for identification of a flight that has filed its flight plan while in the air, beginning its route description from a specified point en-route, and therefore may not have provided a departure aerodrome.

SidStarAbbreviatedDesignator	
B-2.3.2	When a Standard Departure Route or Standard Arrival Route is seven characters, it should be possible to include both the seven-character name and the shortened name as described in Annex 11, Appendix 3, paragraph 2.2. A note there states:

Note. - Limitations in the display equipment on board aircraft may require shortening of the basic indicator, if that indicator is a five-letter name-code, e.g. KODAP. The manner in which such an indicator is shortened is left to the discretion of operators.

In practice, the ARINC 424 specification contains an algorithm used to shorten seven character names. This algorithm results in publication of shortened names that are used in FMS databases and in some ground automation systems. Making both names available allows each system to use the designator consistent with their database. Note also, that as automated uplink of clearances to aircraft is implemented a ground system using the seven-character name will need to upload the shorter name for it to load to the FMS successfully. |

SidStarDesignator	
B-2.3.1	The expression of a route identifier shall allow for the specification of an ATS Route, Standard Departure Route, and Standard Arrival Route as described in Appendices 1 and 3 of PANS-ATM.

SidStarReference	
B-2.3	Route Identifier

The expression of a route identifier shall allow for the specification of an ATS Route, Standard Departure Route, and Standard Arrival Route as described in Appendices 1 and 3 of PANS-ATM.

When a Standard Departure Route or Standard Arrival Route is seven characters, it should be possible to include both the seven-character name and the shortened name as described in Annex 11, Appendix 3, paragraph 2.2. A note there states:

Note. - Limitations in the display equipment on board aircraft may require shortening of the basic indicator, if that indicator is a five-letter name-code, e.g. KODAP. The manner in which such an indicator is shortened is left to the discretion of operators.

In practice, the ARINC 424 specification contains an algorithm used to shorten seven character names. This algorithm results in publication of shortened names that are used in FMS databases and in some ground automation systems. Making both names available allows each system to use the designator consistent with their database. Note also, that as automated uplink of clearances to aircraft is implemented a ground system using the seven-character name will need to upload the shorter name for it to load to the FMS successfully. |

SignificantPointChoice	
B-2.2	Position

The expression of an aircraft position (or predicted position) shall allow any of the forms described in PANS-ATM Appendix 3, Section 1.6.3.

The expression of position as a latitude/longitude should be with respect to the WGS-84 ellipsoidal earth.

The expression of an aircraft position shall allow varying precision to be used, appropriate to the operational use of the data. |

NavaidServiceType	
B-2.2	Position The expression of an aircraft position (or predicted position) shall allow any of the forms described in PANS-ATM Appendix 3, Section 1.6.3. The expression of position as a latitude/longitude should be with respect to the WGS-84 ellipsoidal earth. The expression of an aircraft position shall allow varying precision to be used, appropriate to the operational use of the data.

Extension

AerodromeReferenceExtension	
Modeling	Construct used for the data modeling purposes.

AircraftExtension	
Modeling	Construct used for the data modeling purposes.

AircraftOperatorExtension	
Modeling	Construct used for the data modeling purposes.

AircraftTypeExtension	
Modeling	Construct used for the data modeling purposes.

AllPackedInOneExtension	
Modeling	Construct used for the data modeling purposes.

AltitudeInTransitionExtension	
Modeling	Construct used for the data modeling purposes.

ArrivalExtension	
Modeling	Construct used for the data modeling purposes.

AtcUnitReferenceExtension	
Modeling	Construct used for the data modeling purposes.

BoundaryCrossingExtension	
Modeling	Construct used for the data modeling purposes.

CommunicationCapabilitiesExtension

Modeling	Construct used for the data modeling purposes.

ContactInformationExtension

Modeling	Construct used for the data modeling purposes.

CruiseClimbStartExtension

Modeling	Construct used for the data modeling purposes.

CruisingLevelChangeExtension

Modeling	Construct used for the data modeling purposes.

CruisingSpeedChangeExtension

Modeling	Construct used for the data modeling purposes.

DangerousGoodsDimensionsExtension

Modeling	Construct used for the data modeling purposes.

DangerousGoodsExtension

Modeling	Construct used for the data modeling purposes.

DangerousGoodsPackageExtension

Modeling	Construct used for the data modeling purposes.

DangerousGoodsPackageGroupExtension

Modeling	Construct used for the data modeling purposes.

DepartureExtension

Modeling	Construct used for the data modeling purposes.

DesignatedPointExtension

Modeling	Construct used for the data modeling purposes.

DinghiesExtension

Modeling	Construct used for the data modeling purposes.

EnRouteDelayExtension

Modeling	Construct used for the data modeling purposes.

EnRouteExtension	
Modeling	Construct used for the data modeling purposes.

EstimatedElapsedTimeExtension	
Modeling	Construct used for the data modeling purposes.

FlightCapabilitiesExtension	
Modeling	Construct used for the data modeling purposes.

FlightConstraintExtension	
Modeling	Construct used for the data modeling purposes.

FlightEmergencyExtension	
Modeling	Construct used for the data modeling purposes.

FlightExtension	
Modeling	Construct used for the data modeling purposes.

FlightIdentificationExtension	
Modeling	Construct used for the data modeling purposes.

FlightRouteInformationExtension	
Modeling	Construct used for the data modeling purposes.

GeographicalPositionExtension	
Modeling	Construct used for the data modeling purposes.

HazardClassExtension	
Modeling	Construct used for the data modeling purposes.

LastContactExtension	
Modeling	Construct used for the data modeling purposes.

LastPositionReportExtension	
Modeling	Construct used for the data modeling purposes.

LevelConstraintExtension	
Modeling	Construct used for the data modeling purposes.

MeteorologicalDataExtension	
Modeling	Construct used for the data modeling purposes.

NavaidExtension	
Modeling	Construct used for the data modeling purposes.

NavigationCapabilitiesExtension	
Modeling	Construct used for the data modeling purposes.

OnlineContactExtension	
Modeling	Construct used for the data modeling purposes.

PerformanceProfileExtension	
Modeling	Construct used for the data modeling purposes.

PersonOrOrganizationExtension	
Modeling	Construct used for the data modeling purposes.

PostalAddressExtension	
Modeling	Construct used for the data modeling purposes.

ProfilePointExtension	
Modeling	Construct used for the data modeling purposes.

RadioCommunicationFailureExtension	
Modeling	Construct used for the data modeling purposes.

RadioactiveMaterialExtension	
Modeling	Construct used for the data modeling purposes.

RankedTrajectoryExtension	
Modeling	Construct used for the data modeling purposes.

ReclearanceInFlightExtension	
Modeling	Construct used for the data modeling purposes.

RelativePointExtension	
Modeling	Construct used for the data modeling purposes.

RestrictionReferenceExtension	
Modeling	Construct used for the data modeling purposes.

RouteChangeExtension	
Modeling	Construct used for the data modeling purposes.

RouteTrajectoryConstraintExtension	
Modeling	Construct used for the data modeling purposes.

RouteTrajectoryElementExtension	
Modeling	Construct used for the data modeling purposes.

RouteTrajectoryGroupContainerExtension	
Modeling	Construct used for the data modeling purposes.

RouteTrajectoryGroupExtension	
Modeling	Construct used for the data modeling purposes.

ShippingInformationExtension	
Modeling	Construct used for the data modeling purposes.

SidStarReferenceExtension	
Modeling	Construct used for the data modeling purposes.

SpeedConstraintExtension	
Modeling	Construct used for the data modeling purposes.

SpeedScheduleExtension	
Modeling	Construct used for the data modeling purposes.

SupplementaryDataExtension	
Modeling	Construct used for the data modeling purposes.

SurveillanceCapabilitiesExtension	
Modeling	Construct used for the data modeling purposes.

SurvivalCapabilitiesExtension	
Modeling	Construct used for the data modeling purposes.

TelephoneContactExtension	
Modeling	Construct used for the data modeling purposes.

TimeConstraintExtension	
Modeling	Construct used for the data modeling purposes.

TimeRangeExtension	
Modeling	Construct used for the data modeling purposes.

TrajectoryPoint4DExtension	
Modeling	Construct used for the data modeling purposes.

TrajectoryPointPropertyExtension	
Modeling	Construct used for the data modeling purposes.

TrajectoryPointReferenceExtension	
Modeling	Construct used for the data modeling purposes.

TrueAirspeedRangeExtension	
Modeling	Construct used for the data modeling purposes.

VerticalRangeExtension	
Modeling	Construct used for the data modeling purposes.

Measures

Altitude	
Common	Common building block for representing primitive data.

Angle	
Common	Common building block for representing primitive data.

Bearing	
Common	Common building block for representing primitive data.

Distance	
Common	Common building block for representing primitive data.

FlightLevel	
Common	Common building block for representing primitive data.

Frequency	
Common	Common building block for representing primitive data.

GroundSpeed	
Common	Common building block for representing primitive data.

Height	
Common	Common building block for representing primitive data.

IndicatedAirspeed	
Common	Common building block for representing primitive data.

Length	
Common	Common building block for representing primitive data.

Mass	
Common	Common building block for representing primitive data.

Measure	
Common	Common building block for representing primitive data.

Pressure	
Common	Common building block for representing primitive data.

RestrictedAngle	
Modeling	Construct used for the data modeling purposes.

RestrictedFrequency	
Modeling	Construct used for the data modeling purposes.

RestrictedGroundSpeed	
Modeling	Construct used for the data modeling purposes.

RestrictedIndicatedAirspeed	
Modeling	Construct used for the data modeling purposes.

RestrictedLength	
Modeling	Construct used for the data modeling purposes.

RestrictedMass	
Modeling	Construct used for the data modeling purposes.

RestrictedPressure	
Modeling	Construct used for the data modeling purposes.

RestrictedTrueAirspeed	
Modeling	Construct used for the data modeling purposes.

RestrictedVolume	
Modeling	Construct used for the data modeling purposes.

RestrictedWeight	
Modeling	Construct used for the data modeling purposes.

RestrictedWindSpeed	
Modeling	Construct used for the data modeling purposes.

Speed	
Common	Common building block for representing primitive data.

Temperature	
Common	Common building block for representing primitive data.

TrueAirspeed	
Common	Common building block for representing primitive data.

VerticalDistance
Common	Common building block for representing primitive data.

VerticalRate
Common	Common building block for representing primitive data.

Volume
Common	Common building block for representing primitive data.

Weight
Common	Common building block for representing primitive data.

WindDirection
Common	Common building block for representing primitive data.

WindSpeed
Common	Common building block for representing primitive data.

VerticalReference
Common	Common building block for representing primitive data.

ZeroBearingType
Common	Common building block for representing primitive data.

UnitsOfMeasure

UomAirspeed
Common	Common building block for representing primitive data.

UomAltitude
Common	Common building block for representing primitive data.

UomAngle
Common	Common building block for representing primitive data.

UomFlightLevel
Common	Common building block for representing primitive data.

UomFrequency	
Common	Common building block for representing primitive data.

UomGroundSpeed	
Common	Common building block for representing primitive data.

UomHeight	
Common	Common building block for representing primitive data.

UomLength	
Common	Common building block for representing primitive data.

UomMass	
Common	Common building block for representing primitive data.

UomPressure	
Common	Common building block for representing primitive data.

UomTemperature	
Common	Common building block for representing primitive data.

UomVerticalRate	
Common	Common building block for representing primitive data.

UomVolume	
Common	Common building block for representing primitive data.

UomWeight	
Common	Common building block for representing primitive data.

UomWindSpeed	
Common	Common building block for representing primitive data.

Organization

AircraftOperator	
B-2.31	Operator Description An Operator Description is intended to identify the actual operator of a flight when it is not obvious from the aircraft identification.

AircraftOperator	
	Expression of an Operator Description shall be in the form of Free-Text information as described in B-2.30 and should not exceed 20 characters.

AircraftOperatorDesignator	
B-2.31	Operator Description An Operator Description is intended to identify the actual operator of a flight when it is not obvious from the aircraft identification. Expression of an Operator Description shall be in the form of Free-Text information as described in B-2.30 and should not exceed 20 characters.

PersonOrOrganization	
Modeling	Construct used for the data modeling purposes.

RangesAndChoices

FlightLevelOrAltitudeChoice	
Modeling	Construct used for the data modeling purposes.

FlightLevelOrAltitudeOrRangeChoice	
Modeling	Construct used for the data modeling purposes.

TimeChoice	
Modeling	Construct used for the data modeling purposes.

TimeRange	
Modeling	Construct used for the data modeling purposes.

TrueAirspeedChoice	
Modeling	Construct used for the data modeling purposes.

TrueAirspeedRange	
Modeling	Construct used for the data modeling purposes.

VerticalRange	
Modeling	Construct used for the data modeling purposes.

Types

AircraftIdentification

B-2.6	Flight Identification
	An Aircraft Identification for purposes of communication with Air Traffic Services shall allow any of the following:
	a) The ICAO designator for the aircraft operating agency as defined in ICAO Doc. 8585 followed by the flight identification (e.g. KLM511, NGA213, JTR25);
	b) The nationality or common mark and registration mark of the aircraft consistent with Annex 7 (e.g. EIAKO, 4XBCD, N2567GA); or
	c) A two to seven character identifier as specified by an ATM Service Provider.

AircraftTypeDesignator

B-2.5.1	The specification of an aircraft type shall allow expression of a four-character type designator per ICAO Doc. 8643. Such indicators are two to four alphanumeric characters, starting with a letter.

AirportSlotIdentification

B-2.39	Airport Slot
	Departure and Arrival Airport Slot Identification contains information that, combined with other flight plan data, such as date of flight, time and departure (arrival) aerodrome code, facilitates the correlation between the flight plan and its allocated departure (arrival) airport slot.

CharacterString

Common	Common building block for representing primitive data.

Count

Common	Common building block for representing primitive data.

CountPositive

Common	Common building block for representing primitive data.

DecimalIndex

Common	Common building block for representing primitive data.

Duration

Common	Common building block for representing primitive data.

HypertextReference

Common	Common building block for representing primitive data.

ModeACode

B-2.25	Mode A Code
	Expression of a Mode A beacon code shall contain four octal digits consistent with Annex 10, Volume IV.

RestrictedUniversallyUniqueIdentifier	
Modeling	Construct used for the data modeling purposes.

RestrictionReference	
B-2.38	General Flight Constraints A general flight constraint is intended to express a constraint on the flight that cannot be associated with a specific trajectory point, either because it is not relevant to only a specific point or because it is not possible to identify the point. Expression of a general flight constraint shall allow for identification of a reference to a published constraint; description of applicability; and description of the impact of the constraint on the flight. If a reference is provided, then the descriptive data is optional. If there is no reference to published information, then descriptive data is required. As with other constraints, reference to a published constraint should allow reference to a NOTAM; advisory; or AIXM identifier as necessary. Description of the applicability shall accommodate a free-text description. Description of the impact of the constraint shall accommodate a free-text description

TextName	
Common	Common building block for representing primitive data.

Time	
Common	Common building block for representing primitive data.

UniversallyUniqueIdentifier	
B-2.29.1	A GUFI shall consist of a Version 4 Universally Unique Identifier (UUID) as described in ISO/IEC 9834-8:2008 and IETF RFC 4122, and ITU rec. X-667.