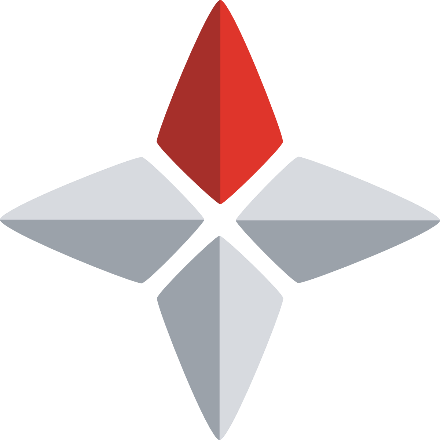
****

**AeroNav Format Specification**

|  |  |
| --- | --- |
| Company: | Navigraph |
| Author: | Richard Stefan |
| Version: | 2.00 |
| Date: | February 12, 2025 |

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**Revisions**

|  |  |  |
| --- | --- | --- |
| Version | Date | Changes |
| 1.00 | 11/02/2025 | first public version |

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# **Introduction**

This document will define the complete dataset specifications of the AeroNav format.

The AeroNav format contains the primary records of the following record types (in parenthesis, the corresponding ARINC 424 section and subsection codes):

* [Airports (PA)](#_Airports)
* [Enroute Airways (ER)](#_Enroute_Airways)
* [Enroute NDB Navaids (DB)](#_VHF_Navaids,_Enroute)
* [Enroute Waypoints (EA)](#_Enroute_Waypoints,_Terminal)
* [Holdings (EP)](#_Holdings)
* [IAP - Instrument Arrival Procedures (PF)](#_Terminal_Procedures_(SID/STAR/IAP))
* [Localizer Marker (PM)](#_Localizer_Marker)
* [Localizer/Glideslopes (PI)](#_Localizers/Glideslopes)
* [Runways (PG)](#_Runways)
* [SID – Standard Instrument Departure (PD)](#_Terminal_Procedures)
* [STAR – Standard Terminal Arrival Route (PE)](#_Terminal_Procedures)
* [Terminal NDB Navaids (PN)](#_VHF_Navaids)
* [Terminal Waypoints (PC)](#_Enroute_NDB_Navaids)
* [VHF Navaids (D)](#_VHF_Navaids)
* [Gate (PB)](#_Cruising_Tables)

## Specification ASCII text-file format

All fields in the records are separated with a | character (vertical bar or ASCII 124). All blanks will be trimmed at the end of each field (excluding special marked fields – footnote)

# **Record/Field Specification**

## Header / Metadata

Filename:

Header.txt

ASCII Format:

creator|cycle|data\_provider|dataset\_version|dataset|  
effective\_fromto|parsed\_at|revision

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max. length* | *ARINC Ref* |
| creator | alphanumeric | 16 |  |
| cycle | alphanumeric | 4 |  |
| data\_provider | alphanumeric | 16 |  |
| dataset\_version | alphanumeric | 16 |  |
| dataset | alphanumeric | 20 |  |
| effective\_fromto | alphanumeric | 10 |  |
| parsed\_at | alphanumeric | 22 |  |
| revision | alphanumeric | 3 |  |

Description:

* creator: company name (ex. Navigraph)
* cycle: valid AIRAC cycle (ex. 2410)
* data\_provider: data provider (ex. Jeppesen)
* dataset\_version: dataset specification version (Format: 2.0.xx.xxxx)
* dataset: name of the dataset (Format: NG\_xxx…)
* effective\_fromto: the date when the current AIRAC cycle starts/ends (Format DDMMDDMMYY– DD is the day, MM is the month, YY is the year) (ex. 0310301024)
* parsed\_at: parsing/creation date of this AIRAC cycle (Format YYYY-MM-DD – HH:MM:SS in UTC)
* revision: revision of this AIRAC cycle (Format: xxx)

## VHF Navaids, Enroute NDB Navaids, Terminal NDB Navaids

Filename:

Navaids.txt

ASCII Format:

id|navaid\_identifier|navaid\_icao\_code|airport\_identifier|navaid\_frequency|navaid\_name|navaid\_latitude|navaid\_longitude|navaid\_usage|  
navaid\_type

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| id | Numeric | - | - |
| navaid\_identifier | alphanumeric | 4 | 5.33 |
| icao\_code | alphanumeric | 2 | 5.14 |
| airport\_identifier | alphanumeric | 4 | 5.6 |
| navaid\_frequency | numeric | - | 5.34 |
| navaid\_name | alphanumeric | 30 | 5.71 |
| navaid\_latitude | numeric | - | 5.36 |
| navaid\_longitude | numeric | - | 5.37 |
| navaid\_usage | alphanumeric | 1 | - |
| navaid\_type | numeric | - | - |

Description:

* id: unique number
* navaid\_identifier: navaid identifier
* icao\_code: 2-letter location indicator of the navaid
* airport\_identifier: four-character ICAO location identifier
* navaid\_frequency: navaid frequency in kHz
* navaid\_name: navaid name
* navaid\_latitude: navaid latitude in degrees decimal floating point (N positive, S negative)
* navaid\_longitude: navaid longitude in degrees decimal floating point (E positive, W negative)
* navaid\_usage: navaid usage (see appendix 3.1)
* navaid\_type: navaid type (see appendix 3.2)

## Enroute Waypoints, Terminal Waypoints

Filename:

Waypoints.txt

ASCII Format:

id|waypoint\_identifier|icao\_code|airport\_identifier|  
waypoint\_latitude|waypoint\_longitude|waypoint\_usage

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| id | numeric | - | - |
| waypoint\_identifier | alphanumeric | 5 | 5.13 |
| icao\_code | alphanumeric | 2 | 5.14 |
| waypoint\_latitude | numeric | - | 5.36 |
| waypoint\_longitude | numeric | - | 5.37 |
| waypoint\_usage | alphanumeric | 1 | - |

Description:

* id: unique number
* waypoint\_identifier: waypoint identifier
* icao\_code: 2-letter location indicator of the waypoint
* waypoint\_latitude: waypoint latitude in degrees decimal floating point (N positive, S negative)
* waypoint\_longitude: waypoint longitude in degrees decimal floating point (E positive, W negative)
* waypoint\_usage: waypoint usage (see appendix 3.3)

## Holdings

Filename:

Holdings.txt

ASCII Format:

waypoint\_sectioncode|waypoint\_id|turn\_direction|  
inbound\_holding\_course|leg\_length|leg\_time|holding\_speed|  
minimum\_altitude|maximum\_altitude

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| waypoint\_sectioncode | alphanumeric | 3 |  |
| id | numeric | - | - |
| turn\_direction | alphanumeric | 1 |  |
| inbound\_holding\_course | numeric | - | 5.62 |
| leg\_length | numeric | - | 5.64 |
| leg\_time | numeric | - | 5.65 |
| holding\_speed | numeric | - | 5.175 |
| minimum\_altitude | numeric | - | 5.30 |
| maximum\_altitude | numeric | - | 5.127 |

Description:

* waypoint\_sectioncode: waypoint type (see appendix 3.4)
* id: reference id to waypoints/navaids
* turn\_direction: holding turn direction (see appendix 3.5)
* inbound\_holding\_course: inbound magnetic course in degrees floating point
* leg\_length: inbound leg length in nautical miles, decimal floating point
* leg\_time: inbound leg time in minutes, decimal floating point
* holding\_speed: holding speed limit in knots
* minimum\_altitude: contain altitudes in feet or flight level
* maximum\_altitude: contain altitudes in feet or flight level

## Enroute Airways

Filename:

Airways.txt

ASCII Format:

Header:

“A”|route\_identifier

Segment:

“S”|from\_sectioncode|from\_sectioncode|  
to\_type|to\_id|inbounce\_course|outbound\_course|  
inbound\_distance|direction\_restriction|flightlevel|  
minimum\_altitude1|maximum\_altitude|crusing\_table\_identifier

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| route\_identifier | alphanumeric | 6 | 5.8 |
| from\_sectioncode | alphanumeric | 3 | - |
| from\_id | numeric | - | - |
| to\_sectioncode | alphanumeric | 3 | - |
| to\_id | numeric | - | - |
| inbound\_course | numeric | - | 5.28 |
| outbound\_course | numeric | - | 5.26 |
| inbound\_distance | numeric | - | 5.27 |
| direction\_restriction | alphanumeric | 1 | 5.115 |
| flightlevel | alphanumeric | 1 | 5.19 |
| minimum\_altitude1 | numeric | - | 5.30 |
| maximum\_altitude | numeric | - | 5.127 |
| crusing\_table\_identifier | alphanumeric | 2 | 5.134 |

Description:

* route\_identifier: enroute route identifier
* from\_sectioncode: waypoint type (see appendix 3.4)
* from\_id: reference id to waypoints/navaids
* to\_sectioncode: waypoint type (see appendix 3.4)
* to\_id: reference id to waypoints/navaids
* inbound\_course: inbound magnetic course to the waypoint identified
* outbound\_course: outbound magnetic course from the waypoint identified
* inbound\_distance: contain segment distances/along track distances/excursion distances/DME distances in nautical miles
* direction\_restriction: indicate the flyable direction (see appendix 3.5)
* flightlevel: defines the airway structure (see appendix 3.6)
* minimum\_altitude1: contain altitudes in feet
* maximum\_altitude: contain altitudes in feet
* crusing\_table\_identifier: indicate the cruising table (see appendix 3.8)

## Airports

Filename:

Airports.txt

ASCII Format:

id|airport\_identifier|icao\_code|ata\_iata\_code|airport\_name|  
elevation|true\_mag\_flag|magnetic\_variation|airport\_ref\_latitude|  
airport\_ref\_longitude

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| id | numeric | - | - |
| airport\_identifier | alphanumeric | 4 | 5.6 |
| icao\_code | alphanumeric | 2 | 5.14 |
| ata\_iata\_code | alphanumeric | 3 | 5.107 |
| airport\_name | alphanumeric | 30 | 5.71 |
| elevation | numeric | - | 5.55 |
| true\_mag\_flag | alphanumeric | 1 | - |
| magnetic\_variation | numeric | - | 5.39 |
| airport\_ref\_latitude | numeric | - | 5.36 |
| airport\_ref\_longitude | numeric | - | 5.37 |

Description:

* id: unique number
* airport\_identifier: four character ICAO location identifier
* icao\_code: location indicator of the airport
* ata\_iata\_code: IATA/ATA airport designator code
* airport\_name: airport name
* elevation: elevation in feet above MSL
* true\_mag\_flag: true or magnetic flag (see appendix 3.9)
* magnetic\_variation: magnetic north at the location
* airport\_ref\_latitude: airport reference latitude in degrees decimal floating point (N positive, S negative)
* airport\_ref\_longitude: airport reference longitude in degrees decimal floating point (E positive, W negative)

## Runways

Filename:

Runways.txt

ASCII Format:

id|airport\_identifier|runway\_identifier|runway\_magnetic\_bearing|  
runway\_length|runway\_width|landing\_threshold\_elevation|  
runway\_latitude|runway\_longitude

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| id | numeric | - | - |
| airport\_identifier | alphanumeric | 4 | 5.3 |
| runway\_identifier | alphanumeric | 3 | 5.68 |
| runway\_magnetic\_bearing | numeric | - | 5.44 |
| runway\_length | numeric | - | 5.67 |
| runway\_width | numeric | - |  |
| landing\_threshold\_elevation | numeric | - | 5.36 |
| runway\_latitude | numeric | - | 5.69 |
| runway\_longitude | numeric | - | 5.109 |

Description:

* id: unique number
* airport\_identifier: four character ICAO location identifier
* runway\_identifier: runway identifier
* runway\_magnetic\_bearing: magnetic bearing of the runway identifier
* runway\_length: runway length in feet
* runway\_width: runway width in feet
* landing\_theshold\_elevation: elevation of the landing threshold in feet
* runway\_latitude: runway latitude in degrees decimal floating point (N positive, S negative)
* runway\_longitude: runway longitude in degrees decimal floating point (E positive, W negative)

## Localizers/Glideslopes

Filename:

Localizers.txt

ASCII Format:

id|airport\_identifier|llz\_identifier|runway\_identifier|  
ils\_mls\_gls\_category|llz\_bearing|llz\_frequency|llz\_latitude|  
llz\_longitude|gs\_angle|gs\_elevation|gs\_latitude|gs\_longitude

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| id | numeric | - | - |
| airport\_identifier | alphanumeric | 4 | 5.3 |
| llz\_identifier | alphanumeric | 4 | 5.44 |
| runway\_identifier | alphanumeric | 3 | 5.46 |
| ils\_mls\_gls\_category | alphanumeric | 1 | 5.80 |
| llz\_bearing | numeric | - | 5.47 |
| llz\_frequency | numeric | - | 5.45 |
| llz\_latitude | numeric | - | 5.36 |
| llz\_longitude | numeric | - | 5.37 |
| gs\_angle | numeric | - | 5.52 |
| gs\_elevation | numeric | - | 5.74 |
| gs\_latitude | numeric | - | 5.36 |
| gs\_longitude | numeric | - | 5.37 |

Description:

* id: unique number
* airport\_identifier: four character ICAO location identifier
* llz\_identifier: identification code of the LLZ, MLS facility or GLS reference path
* runway\_identifier: runway identifier
* ils\_mls\_gls\_category: ILS/MLS/GLS performance categories (see appendix 3.10)
* llz\_bearing: magnetic bearing of the localizer course
* llz\_frequency: VHF frequency of the facility in MHz
* llz\_latitude: LLZ latitude in degrees decimal floating point (N positive, S negative)
* llz\_longitude: LLZ longitude in degrees decimal floating point (E positive, W negative)
* gs\_angle: glide slope angle of an ILS facility/GLS approach in degrees
* gs\_elevation: elevation of LLZ in feet
* gs\_latitude: GS latitude in degrees decimal floating point (N positive, S negative)
* gs\_longitude: GS longitude in degrees decimal floating point (E positive, W negative)

## Localizer Marker

Filename:

Markers.txt

ASCII Format:

airport\_identifier|llz\_identifier|runway\_identifier|marker\_type|  
marker\_latitude|marker\_longitude

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| airport\_identifier | alphanumeric | 4 | 5.3 |
| llz\_identifier | alphanumeric | 4 | 5.44 |
| runway\_identifier | alphanumeric | 5 | 5.47 |
| marker\_type | alphanumeric | 3 | 5.36 |
| marker\_latitude | numeric | - | 5.36 |
| marker\_longitude | numeric | - | 5.37 |

Description:

* airport\_identifier: four character ICAO location identifier
* llz\_identifier: identification code of the LLZ, MLS facility or GLS reference path
* runway\_identifier: runway identifier
* marker\_type: defines the type of marker (see appendix 3.11)
* marker\_latitude: marker latitude in degrees decimal floating point (N positive, S negative)
* marker\_longitude: marker longitude in degrees decimal floating point (E positive, W negative)

## Terminal Procedures (SID/STAR/IAP)

Filename:

proc\<airport\_identifier>.txt

ASCII Format:

Header:

“SID,STAR,APP”|procedure\_identifier|transition\_identifier|  
<total number legs>

Legs:

path\_termination|waypoint\_sectioncode|waypoint\_id|  
recommended\_waypoint\_sectioncode|recommended\_waypoint\_id|  
turn\_direction|course|rho|theta|distance\_time|  
speed\_limit\_description|speed\_limit|altitude\_description|altitude1|  
altitude2|vertical\_angle|overfly|center\_waypoint\_sectioncode|  
center\_waypoint\_id|arc\_radius|mapt

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| airport\_identifier | alphanumeric | 4 | 5.6 |
| procedure\_identifier | alphanumeric | 6 | 5.9/10 |
| path\_termination | alphanumeric | 2 | 5.21 |
| waypoint\_sectioncode | alphanumeric | 3 | - |
| waypoint\_id | numeric | - | - |
| recommended\_waypoint\_sectioncode | alphanumeric | 3 | - |
| recommended\_waypoint\_id | numeric | - |  |
| turn\_direction | alphanumeric | 1 | 5.20 |
| course | numeric | - | 5.26 |
| rho | numeric | - | 5.25 |
| theta | numeric | - | 5.24 |
| distance\_time | numeric | - | 5.27 |
| speed\_limit\_description | alphanumeric | 1 | 5.261 |
| speed\_limit | numeric | - | 5.72 |
| altitude\_description | alphanumeric | 1 | 5.29 |
| altitude1 | numeric | - | 5.30 |
| altitude2 | numeric | - | 5.30 |
| vertical\_angle | numeric | - | 5.70 |
| overfly | alphanumeric | 1 | - |
| center\_waypoint\_sectioncode | alphanumeric | 3 | - |
| center\_waypoint\_id | numeric | - | - |
| arc\_radius | numeric | - | 5.204 |
| mapt | numeric | - | - |

Description:

* airport\_identifier: four character ICAO location identifier
* procedure\_identifier: name of the terminal procedure
* path\_termination: defines the path geometry for a single record of an terminal procedure (see appendix 3.16)
* waypoint\_sectioncode: waypoint type (see appendix 3.4)
* waypoint\_id: reference id to waypoints/navaids
* recommended\_waypoint\_sectioncode: waypoint type (see appendix 3.4)
* recommended\_waypoint\_id: reference id to waypoints/navaids
* turn\_direction: turn direction (see appendix 3.5)
* course: outbound course from the waypoint identified in the record’s “waypoint\_identifier” field
* rho: defined as the geodesic distance in nautical miles to the waypoint identified in the record’s “waypoint\_identifier” field from the “recommended\_navaid\_identifier” field
* theta: defined as the magnetic bearing to the waypoint identified in the record’s “waypoint\_identifier” field from the “recommended\_navaid\_identifier” field
* distance\_time: indicates the distance
* speed\_limit\_description: designate whether the speed limit coded at a waypoint in a terminal procedure description is a mandatory, minimum or maximum speed (see appendix 3.15)
* speed\_limit: speed limit in knots
* altitude\_description: designate whether a waypoint should be crossed (see appendix 3.17)
* altitude1: contain altitudes in feet or flight level
* altitude2: contain altitudes in feet or flight level
* vertical\_angle: defines the vertical navigation path prescribed for the procedure
* overfly: flyby/over flag (see appendix 3.19)
* center\_waypoint\_sectioncode: waypoint type (see appendix 3.4)
* center\_waypoint\_id: reference id to waypoints/navaids
* arc\_radius: used to define the radius of a precision turn
* mapt: missed approach point (see appendix 3.18)

## Gate

Filename:

Gates.txt

ASCII Format:

airport\_identifier|gate\_identifier|gate\_latitude|  
gate\_longitude

|  |  |  |  |
| --- | --- | --- | --- |
| *Field* | *Format* | *max.length* | *ARINC Ref* |
| airport\_identifier | alphanumeric | 4 | 5.6 |
| gate\_identifier | alphanumeric | 5 | 5.56 |
| gate\_latitude | numeric | - | 5.36 |
| gate\_longitude | numeric | - | 5.37 |

Description:

* airport\_identifier: four character ICAO location identifier
* gate\_identifier: airport gate identifier
* gate\_latitude: latitude in degrees decimal floating point (N positive, S negative)
* gate\_longitude: longitude in degrees decimal floating point (E positive, W negative)

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# **Appendixes**

## Navaid Usage

|  |  |
| --- | --- |
| **Field** | **Description** |
| T | Terminal Navaid |
| E | Enroute Navaid |

## Navaid Type

|  |  |
| --- | --- |
| **Field** | **Description** |
| 0 | NDB |
| 1 | VOR/DME |
| 2 | VORTAC Military |
| 3 | VOR/ILS/DME |
| 4 | VOR/MLS/DME/N |
| 5 | VOR/MLS/DME/P |
| 6 | VOR |
| 7 | VORTAC |
| 8 | DME |
| 9 | TACAN Military |
| 10 | ILS/DME |
| 11 | MLS/DME/N |
| 12 | MLS/DME/P |
| 13 | VHF |
| 14 | TACAN |

## Waypoint Usage

|  |  |
| --- | --- |
| **Field** | **Description** |
| T | Terminal Waypoint |
| E | Enroute Waypoint |

## Waypoint SectionCode

|  |  |
| --- | --- |
| **Field** | **Description** |
| WPT | Waypoint |
| NAV | Navaid |

## Turn Direction

|  |  |
| --- | --- |
| **Field** | **Description** |
| L | left turn |
| R | right turn |
| blank | shortest turn |

## Flightlevel

|  |  |
| --- | --- |
| **Field** | **Description** |
| B | All Altitudes |
| H | High Level Airways |
| L | Low Level Airways |

## Directional Restriction

|  |  |
| --- | --- |
| **Field** | **Description** |
| F | One way in direction route is coded (Forward) |
| B | One way in opposite direction route is coded (backwards) |
| blank | no restrictions on direction |

## Cruise Table Identifier

|  |  |
| --- | --- |
| **Field** | **Description** |
| AA | ICAO standard cruise table |
| AO | Exception to ICAO cruise table |
| BB-ZZ | Modified cruise table |
| BO-ZO | Exception to modified cruise table |

## True/Mag Flag

|  |  |
| --- | --- |
| **Field** | **Description** |
| T | True |
| M | Mag |

## ILS/MLS/GLS Category

|  |  |
| --- | --- |
| **Field** | **Description** |
| 0 | Loc only |
| 1 | CAT 1 |
| 2 | CAT 2 |
| 3 | CAT 3 |
| I | IGS |
| L | LDA with GS |
| A | LDA without GS |
| F | SDF without GS |

## Marker Type

|  |  |
| --- | --- |
| **Field** | **Description** |
| IM | Inner Marker |
| MM | Middle Marker |
| OM | Outer Marker |
| BM | Back Marker |
| L | Locator at Marker |

## Route Type for SIDs (PD)

|  |  |
| --- | --- |
| **Field** | **Description** |
| 0 | Engine Out SID |
| 1 | SID Runway Transition |
| 2 | SID or SID Common Route |
| 3 | SID Enroute Transition |
| 4 | RNAV SID Runway Transition |
| 5 | RNAV SID or SID Common Route |
| 6 | RNAV SID Enroute Transition |
| F | FMS SID Runway Transition |
| M | FMS SID or SID Common Route |
| S | FMS SID Enroute Transition |
| T | Vector SID Runway Transition |
| V | Vector SID Enroute Transition |

## Route Type for STARs (PE)

|  |  |
| --- | --- |
| **Field** | **Description** |
| 1 | STAR Enroute Transition |
| 2 | STAR or STAR Common Route |
| 3 | STAR Runway Transition |
| 4 | RNAV STAR Enroute Transition |
| 5 | RNAV STAR or STAR Common Route |
| 6 | RNAV STAR Runway Transition |
| 7 | Profile Descent Enroute Transition |
| 8 | Profile Descent Common Route |
| 9 | Profile Descent Runway Transition |
| F | FMS STAR Enroute Transition |
| M | FMS STAR or STAR Common Route |
| S | FMS STAR Runway Transition |

## Route Type of IAPs (PF)

|  |  |
| --- | --- |
| **Field** | **Description** |
| A | Approach Transition |
| B | Localizer/Back course Approach |
| D | VORDME Approach |
| F | FMS Approach |
| G | IGS Approach |
| I | ILS Approach |
| J | GLS Approach |
| L | LOC only Approach |
| M | MLS Approach |
| N | NDB Approach |
| P | GPS Approach |
| Q | NDB DME Approach |
| R | RNAV Approach |
| S | VOR Approach using VORDME/VORTAC |
| T | TACAN Approach |
| U | SDF Approach |
| V | VOR Approach |
| W | MLS Type A Approach |
| X | LDA Approach |
| Y | MLS Type B and C Approach |
| Z | Missed Approach |

## Speed Limit Description

|  |  |
| --- | --- |
| **Speed Limit** | **Description** |
| @ | Mandatory Speed, cross fix at speed specified in the Speed Limit field |
| + | Minimum Speed, cross fix at or above speed specified in Speed Limit field |
| - | Maximum Speed, cross fix at or below speed specified in Speed Limit field |

## Path and Termination

|  |  |
| --- | --- |
| **Path & Termination** | **Description** |
| IF | Initial Fix |
| TF | Track to a Fix |
| CF | Course to a Fix |
| DF | Direct to a Fix |
| FA | Fix to an Altitude |
| FC | Track from a Fix for a Distance |
| FD | Track from a Fix to a DME Distance |
| FM | From a Fix to a Manual termination |
| CA | Course to an Altitude |
| CD | Course to a DME Distance |
| CI | Course to an Intercept |
| CR | Course to a Radial termination |
| RF | Constant Radius Arc |
| AF | Arc to Fix |
| VA | Heading to an Altitude |
| VD | Heading to a DME Distance termination |
| VI | Heading to an Intercept |
| VM | Heading to a Manual termination |
| VR | Heading to a Radial termination |
| PI | 045/180 Procedure turn |
| HA, HF, HM | Holding in lieu of Procedure Turn |

## Altitude Description

|  |  |
| --- | --- |
| **Field** | **Description** |
| + | at or above altitude specified in Altitude1 field |
| - | at or below altitude specified in Altitude1 field |
| @ | at altitude specified in Altitude1 field |
| B | at or above to at or below altitudes in Altitude1 field and Altitude2 field |
| C | at or above altitude specified in Altitude2 field |
| G | Glide Slope altitude (MSL) specified in Altitude2 field and at altitude specified in Altitude1 field |
| H | Glide Slope altitude (MSL) specified in Altitude2 field and at or above altitude specified in Altitude1 field |
| I | Glide Slope Intercept Altitude specified in Altitude2 field and at altitude specified in Altitude1 field |
| J | Glide Slope Intercept Altitude specified in Altitude2 field and at or above altitude specified in Altitude1 field |
| V | at altitude on the coded vertical angle in the Altitude2 field and at or above altitude specified in Altitude1 field |
| X | at altitude on the coded vertical angle in Altitude2 field and at altitude specified in Altitude1 field |
| Y | at altitude on the coded vertical angle in Altitude2 field and at or below altitude specified in the Altitude1 field |

## MAPt

|  |  |
| --- | --- |
| **Field** | **Description** |
| 1 | missed approach waypoint |
| blank | - |

## Overfly

|  |  |
| --- | --- |
| **Field** | **Description** |
| 0 | fly-by |
| 1 | fly-over |