

**Integrity of Aeronautical  
Information -  
Abbreviations and  
Definitions**

**CHAIN**

*Controlled and Harmonised  
Aeronautical Information Network*

CHAIN/0031

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### Abstract

This document exists as one of a set of documents which provide guidance for organisations wishing to improve and enhance the integrity of their information.

It contains the meaning of abbreviations and the definitions of terms used throughout the guidance material.

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The following table identifies all management authorities that have successively approved the present issue of this document.

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**DOCUMENT CHANGE RECORD**

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## 1. INTRODUCTION

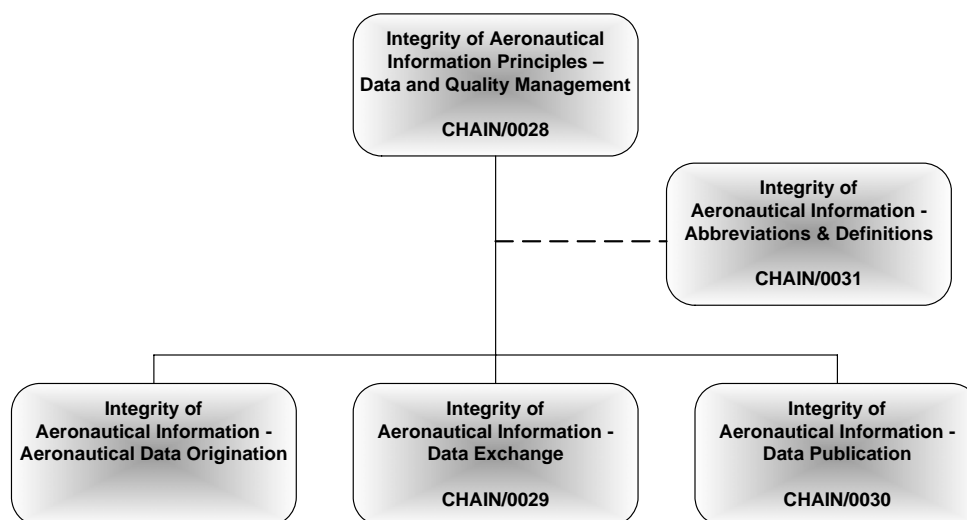
### 1.1 General

A set of guidance material documents has been produced by EUROCONTROL to support the implementation of processes and systems throughout the Aeronautical Information data chain.

This document 'Abbreviations and Definitions' provides a single point of reference for a description of the use of words within all volumes of the guidance material.

### 1.2 Relationship with other Documents

Figure 1: Document Relationship, illustrates how this document relates to other documents within the overall guidance material for the Integrity of Aeronautical Information.



**Figure 1: Document Relationship**

The other documents illustrated in Figure 1 are as follows:

- a. Integrity of Aeronautical Information Principles – Data and Quality Management;

Provides a high level overview of the data integrity process and provides additional essential guidance material for all organisations, describing effective data management and quality management processes and procedures which must support a data process to ensure that the integrity and quality objectives of such a process are achieved.

- b. Integrity of Aeronautical Information – Data Origination;

Sets out the minimum requirements for the origination of navigation-related data applying to all organisations involved in the data origination process. The requirements cover the surveying of radio navigation aids and points whose coordinates contribute to air navigation.

Note: This document is prepared and issued by the EUROCONTROL Navigation (NAV) domain in collaboration with the Air Navigation Team. Use is made of this document within the CHAIN activities although its maintenance remains the responsibility of the NAV domain.

c. Integrity of Aeronautical Information - Data Exchange:

Provides the requirements necessary for the protection of data in transmission from one point to another, be it within an organisation or across organisations.

d. Integrity of Aeronautical Information - Data Publication;

Sets out the minimum requirements for the process involved in the provision of aeronautical data publication and applies to all organisations involved in the publication process for Aeronautical Information.

### **1.3 Structure of this Document**

Section 2 provides a list of abbreviations found within the guidance material.

Section 3 provides a list of definitions, and their meanings, as used within the guidance material.

## 2. ABBREVIATIONS

<u>Abbreviation</u>	<u>Meaning</u>
ADP	AIS DATA PROCESS
AIP	AERONAUTICAL INFORMATION PUBLICATION
AIS	AERONAUTICAL INFORMATION SERVICES
ANSP	AIR NAVIGATION SERVICE PROVIDER
ARINC	AERONAUTICAL RADIO INCORPORATED
ARP	AIRPORT REFERENCE POINT
ATC	AIR TRAFFIC CONTROL
ATM	AIR TRAFFIC MANAGEMENT
ATSP	AIR TRAFFIC SERVICES PROVIDER
BITE	BUILT-IN TEST EQUIPMENT
CAA	CIVIL AVIATION AUTHORITY
CAD	COMPUTER AIDED DESIGN
CERCO	COMITE EUROPEEN DES RESPONSABLES DE LA CARTOGRAPHIC OFFICIELLE
CORS	CONTINUALLY OPERATING REFERENCE STATION
CRC	CYCLIC REDUNDANCY CHECK
DGPS	DIFFERENTIAL GLOBAL POSITIONING SYSTEM
DIT	DATA INTEGRITY TOOL
DMA	DEFENSE MAPPING AGENCY (USA)
DME	DISTANCE MEASURING EQUIPMENT
DME/N	DISTANCE MEASURING EQUIPMENT / NORMAL
DME/P	DISTANCE MEASURING EQUIPMENT / PRECISION
DOP	DILUTION OF PRECISION
DQTS	DATA QUALITY TOOL SET
DT	DISPLACED THRESHOLD
EAD	EUROPEAN AIS DATABASE
EAIP	ELECTRONIC AIP
EASA	EUROPEAN AVIATION SAFETY AGENCY
ECAC	EUROPEAN CIVIL AVIATION CONFERENCE
EGNOS	EUROPEAN GEOSTATIONARY NAVIGATION OVERLAY SERVICE
ETRS	EUROPEAN TERRESTRIAL REFERENCE SYSTEM

<b>Abbreviation</b>	<b>Meaning</b>
EUREF	EUROPEAN REFERENCE SYSTEM
EUROCAE	EUROPEAN ORGANISATION FOR CIVIL AVIATION EQUIPMENT MANUFACTURERS
FATO	FINAL APPROACH AND TAKEOFF AREA
FHA	FUNCTIONAL HAZARD ASSESSMENT
FMS	FLIGHT MANAGEMENT SYSTEM
FPAP	FLIGHT PATH ALIGNMENT POINT
FRAP	FREE ROUTE AIRSPACE PROJECT
GIS	GEOGRAPHIC INFORMATION SYSTEM
GNSS	GLOBAL NAVIGATION SATELLITE SYSTEM
GPS	GLOBAL POSITIONING SYSTEM
GRS	GLOBAL REFERENCE SYSTEM
ICAO	INTERNATIONAL CIVIL AVIATION ORGANISATION
IERS	INTERNATIONAL EARTH ROTATION SERVICE
IGS	INTERNATIONAL GPS SERVICE
ILS	INSTRUMENT LANDING SYSTEM
ISO	INTERNATIONAL ORGANISATION FOR STANDARDISATION
ITRF	INTERNATIONAL TERRESTRIAL REFERENCE FRAME
ITRS	INTERNATIONAL TERRESTRIAL REFERENCE SYSTEM
JAA	JOINT AVIATION AUTHORITIES
LTP	LANDING THRESHOLD POINT
MLS	MICROWAVE LANDING SYSTEM
MSL	MEAN SEA LEVEL
NAVAID	NAVIGATIONAL AID
NDB	NONDIRECTIONAL BEACON
NM	NAUTICAL MILE
NOTAM	NOTICE TO AIRMEN
NSA	NATIONAL SUPERVISORY AUTHORITY
PANS OPS	PROCEDURES FOR AIR NAVIGATION SERVICES (OPERATIONS)
PRNAV	PRECISION AREA NAVIGATION
QMS	QUALITY MANAGEMENT SYSTEM

<u>Abbreviation</u>	<u>Meaning</u>
RGPS	RELATIVE GLOBAL POSITIONING SYSTEM
RINEX	RECEIVER INDEPENDENT EXCHANGE
RNAV	AREA NAVIGATION
RNP RNAV	REQUIRED NAVIGATION PERFORMANCE RNAV
RTCA	RADIO TECHNICAL COMMISSION FOR AERONAUTICS (USA)
RTK	REAL-TIME KINEMATIC
RTKGPS	REAL-TIME KINEMATIC GLOBAL POSITIONING SYSTEM
SARPs	STANDARDS AND RECOMMENDED PRACTICES
SDP	STATIC DATA PROCEDURES
SID	STANDARD INSTRUMENT DEPARTURE
SMGCS	SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEMS
STAR	STANDARD ARRIVAL ROUTE
TACAN	TACTICAL AIR NAVIGATION
TAWS	TERRAIN AWARENESS WARNING SYSTEM
TGL	JAA TECHNICAL GUIDANCE LEAFLET
TLOF	TOUCHDOWN AND LIFT-OFF AREA
TMA	TERMINAL CONTROL AREA
UTC	UNIVERSAL CO-ORDINATED TIME
VFR	VISUAL FLIGHT RULES
VOR	VERY HIGH FREQUENCY OMNIDIRECTIONAL RANGE STATION
WGS 84	WORLD GEODETIC SYSTEM OF 1984
XML	EXTENSIBLE MARK UP LANGUAGE
XSLT	XML STYLE SHEET

**Table 1: Abbreviations Used**

### 3. DEFINITIONS

Where the origin of a definition is an ICAO document it is indicated as such in the Origin column.

<u>Word</u>	<u>Definition</u>	<u>Origin</u>
Accuracy	The degree of conformance between the estimated or measured value and the true value.  <i>NOTE: For measured positional data, the accuracy is normally expressed in terms of a distance from a stated position within which there is a defined confidence level of the true position falling.</i>	Annex 14 Vol. 1
Aerodrome Mapping Area	The aerodrome area that is not covered by Area 3 - CAT II or III Operational Areas. This includes the aerodrome surface movement areas plus a buffer of the minimum separation distances as specified in ICAO Document 9157.	
Aeronautical Data.	A representation of aeronautical facts, concepts or instructions in a formalized manner suitable for communication, interpretation or processing.	Annex 15
Aeronautical Information.	Information resulting from the assembly, analysis and formatting of aeronautical data.	Annex 15
Aiming Point Marking	The aiming point marking is located within the final approach and take-off area.  The aiming point marking is an equilateral triangle with the bisector of one of the angles aligned with the preferred approach direction.  Recommendation: An aiming point marking should be provided at a heliport where it is necessary for a pilot to make an approach to a particular point before proceeding to the touchdown and lift-off area.	Annex 14 Vol. II  Annex 14 Vol. II  Annex 14 Vol. II
Area 1	The entire territory of a State including aerodromes/heliports.	Annex 15
Area 2 - Terminal airspace	Area 2 is the terminal control area as published in a State's AIP, limited to a 45 km radius from the aerodrome /heliport reference point. At aerodromes /heliports where a TMA has not been established, Area 2 shall be the area within the 45 km radius from the aerodrome /heliport reference point.	Annex 15
Area 3 – Aerodrome/heliport area	Area 3 shall cover the area which is within 50 metres from the edges of defined aerodrome or heliport movement area.	Annex 15

<u>Word</u>	<u>Definition</u>	<u>Origin</u>
Area 4 - CAT II or III Operational area	Area 4 shall be restricted only to those runways where precision approach Cat II or III operations have been established and where detailed terrain information is required by operators in order to enable them to assess the effect of terrain on decision height determination by use of radio altimeters.	Annex 15
Aerodrome Reference Point	The designated geographical location of an aerodrome.	Annex 14 Vol. 1
Blunders	From the statistical point of view blunders, or mistakes, are observations that cannot be considered as belonging to the same sample from the distribution in question. Therefore they should not be used with other observations, and should be located and eliminated. In the advanced surveying practice statistical procedures, digital filters, etc. exist that are capable of locating and eliminating these errors.	
Confidence level	The probability that the position values are within the stated accuracy of the true position.  The confidence level of the position will be stated, e.g. as a percentage;  Confidence level will be expressed as the probability that any single location in the data set is in error of the true position by less than the stated accuracy.	
Cyclic Redundancy Check	A mathematical algorithm applied to the digital expression of data that provides a level of assurance against loss or alteration of data.	Annex 15
Data Product Specification.	Detailed description of a data set or data set series together with additional information that will enable it to be created, supplied to and used by another party (ISO 19131*).  <i>Note: A data product specification provides a description of the universe of discourse and a specification for mapping the universe of discourse to a data set. It may be used for production, sales, end-use or other purpose.</i>	Annex 15
Data Quality	A degree or level of confidence that the data provided meets the requirements of the data user in terms of accuracy, resolution and integrity.	Annex 15
Derived Data	Refers to the data which is derived from other data (entity or derived) and hence, typically, not related to physical equipment – e.g. an approach procedure derived from runway, NAVAID and way-point data in association with other factors such as aircraft performance.	
Datum	Any quantity or set of quantities that may serve as a reference or basis for the calculation of other quantities (ISO 19104).	Annex 15

<u>Word</u>	<u>Definition</u>	<u>Origin</u>
Datum Transfer	The act of establishing a datum at the aerodrome with respect to the designated local geodetic datum.	
Displaced Threshold	A threshold not located at the extremity of a runway.  NOTE: A threshold that is located at a point on the runway other than the designated beginning of the runway. The displaced area is available for takeoff or rollout of aircraft. A displaced threshold bar should be painted on the usable landing surface.	Annex 14 Vol. I
Distance Measuring Equipment	Equipment (airborne and ground) used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid. DME is usually frequency paired with other navigational aids, such as a VOR or Localiser.  DME/N: Distance measuring equipment, primarily serving operational needs for en-route or TMA navigation, where the 'N' stands for narrow spectrum characteristics (to be distinguished from 'W');  DME/P: The distance measuring element of the Microwave Landing System (MLS), where 'P' stands for precise distance measurement. The spectrum characteristics are those of DME/N;  DME/W: Distance measuring equipment, primarily serving operational needs for en-route or TMA navigation, where the 'W' stands for wide spectrum characteristics (to be distinguished from 'N').	Annex 10
Document	Any element of the Integrated Aeronautical Information Package (IAIP) produced by the AIS, including all their constituent parts, e.g. Cover page, Charts. Such documents, e.g. AIP, NOTAM etc, may be presented in both paper printed and electronic form.	
Ellipsoidal height	The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.	Annex 15
Entity	An item which can be individually described and considered.	
Entity Data	Refers to the data relating to a physical piece of equipment – e.g. the data associated with a NAVAID.	
Epoch	An epoch is a definition of a particular point in time, e.g. 2002 10 15 04hrs 02m 15.0sec, in a particular timeframe, e.g. UTC (Coordinated Universal Time)	

<u>Word</u>	<u>Definition</u>	<u>Origin</u>
European Terrestrial Reference Frame 1989	A precise geodetic reference frame, which consists of a limited number of survey stations throughout Europe whose relative positions are known to an accuracy of the order of 2-3 cm and which forms the basis for geodetic survey in Europe. Its associated ellipsoid is Geodetic Reference System 1980 (GRS 80). See Reference Frame	
Geoid	The hypothetical surface of the earth that coincides on average with the mean sea level in the open oceans. The geoid is an equipotential surface to which, at every point, the plumbline is perpendicular. Because of inhomogenous mass distribution within the earth, the geoid is irregular in shape.  <i>NOTE: Mean sea level around coastlines does not necessarily coincide with the geoid.</i>	
Geoid undulation	The distance of the geoid above (positive) or below (negative) the mathematical reference ellipsoid.  <i>NOTE: In respect to the World Geodetic System — 1984 (WGS-84) defined ellipsoid, the difference between the WGS-84 ellipsoidal height and orthometric height represents WGS-84 geoid undulation. The height of the geoid above the specified ellipsoid along the normal to the ellipsoid through the point.</i>	Annex 15
Glide Path	A descent profile determined for vertical guidance during a final approach.	Annex 4
GNSS Landing System	A satellite based precision approach landing and guidance system	
Heliport	An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.	Annex 14 Vol. I
Instrument Approach Procedure	A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply.	Annex 4



<u>Word</u>	<u>Definition</u>	<u>Origin</u>
International Terrestrial Reference Frame	The physical realisation of the ITRS, consisting of a catalogue of station positions and velocities. See Reference Frame.	
International Terrestrial Reference System	International Terrestrial Reference System (ITRS): a set of parameters defining a system that can be used to describe the position of points on the surface of the earth and in near-earth space . See Reference System	
Localiser	The component of an ILS which provides course guidance to the runway.	Annex 10
Locator	An LF (Low Frequency)/MF (Medium Frequency) NDB (Non-directional Radio Beacon) used as an aid to final approach.	Annex 10
Metadata	Data about data. (ISO 19115)	Annex 15
Microwave Landing System	MLS is a precision approach and landing guidance system, which provides position information and various ground to air data.	Annex 10
Monumentation	The physical structure, emplacement and description of survey control points.	
National Administration	The designated State Civil Aviation Authority.	
Non-Directional Radio Beacon (NDB)	An LF/MF radio beacon transmitting non-directional signals whereby the pilot of an aircraft equipped with direction finding equipment can determine his bearing to or from the station. When the NDB is installed in conjunction with an Instrument Approach Procedure, it is normally called a Locator.	Annex 10
Obstacle	All fixed and mobile, permanent or temporary, objects that are located on an area intended for the surface movement of aircraft or that extend above defined obstacle assessment surfaces.  NOTE: See also Significant Obstacle	Annex 15
Obstacle Assessment Surface	A defined surface intended for the purpose of determining those obstacles to be considered in the calculation of obstacle clearance altitude/height for a specific ILS facility and procedure.	ICAO Doc. 8168
Orthometric height	Height of a point related to the geoid, generally presented as an MSL elevation.	Annex 14 Vol. I

<u>Word</u>	<u>Definition</u>	<u>Origin</u>
Post spacing	<p>Is the distance (angular or linear) between two adjacent elevation points. It is to be noted that the latitude post spacing might be different from the longitude post spacing. Terrain database post spacing is presented in both angular and linear units to provide general guidance about the required density of measurement points. The linear measure is an approximation of the angular requirement near the equator.</p> <p>Angular increments may be adjusted when referencing high latitude regions to maintain a constant linear density of measurement points.</p> <p>When linear and angular post spacing requirements differ, the linear requirement will take precedence.</p>	
Precision	The degree of uniformity of repeated measurements or events. For example, repeat measurements of the distance between two points may exhibit a high degree of precision by virtue of the relative uniformity of the measurements.	
Precision Approach Procedure	An instrument approach procedure utilising azimuth and glide path information provided by ILS/MLS or Precision Approach Radar (PAR).	Annex 4
Quality	Totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs (ISO 8402*).	Annex 15
Quality Assurance	All the planned and systematic activities implemented within the quality system, and demonstrated as needed, to provide adequate confidence that an entity will fulfil requirements for quality.	Annex 15
Quality Control	The operational techniques and activities that are used to fulfil requirements for quality.	Annex 15
Quality Management	All activities of the overall management function that determine the quality policy, objectives and responsibilities, and implementing them by means such as quality planning, quality control, quality assurance and quality improvement within the quality system.	Annex 15
Quality Management System	The organisational structure, procedures, processes and resources needed to implement quality management.	Annex 15
Radio Detection and Ranging	A radio detection device which provides information on range, azimuth and/or elevation of objects.	Lexicon

<u>Word</u>	<u>Definition</u>	<u>Origin</u>
Random Errors	<p>When talking of observational errors or random errors of observations, we refer to the basic inherent property that estimates of a random variable <math>x</math> do not agree, in general, with its expectation. Thus an observational error may in this context be defined as:</p> $v_l = x_l - \bar{x}$ <p>with <math>x_l</math> = estimate <math>l</math> of the random variable <math>x</math></p> <p><math>\bar{x}</math> = population mean. (also for sample mean).</p>	
Reference Ellipsoid (formerly called Reference Spheroid)	A geometric figure, usually determined by rotating an ellipse about its shorter (polar) axis, used as a surface of reference for geodetic surveys. The reference ellipsoid closely approximates the dimensions of the geoid, with certain ellipsoids fitting the geoid more closely for various areas of the earth.	
Reference Frame	A terrestrial reference system is defined by a set of conventions giving the orientation in space of an axial coordinate system. The realisation of a reference system is by means of a reference frame. A catalogue of station positions and their velocities define, a reference frame at some defined epoch. See European Terrestrial Reference Frame.	
Reference System	As used in surveying and mapping, a quantity, or set of quantities, used as a reference for calculating other quantities, such as positions and elevations. The reference system for civil aviation is World Geodetic System 1984. See European Reference System.	
Resolution	A number of units or digits to which a measured or calculated value is expressed and used.	Annex 15
Runway	A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.	Annex 4

<u>Word</u>	<u>Definition</u>	<u>Origin</u>
Significant Obstacle	<p>Any natural terrain feature or obstacle which has vertical significance in relation to adjacent and surrounding features and which is considered a potential hazard to the safe passage of aircraft in the type of operation for which terrain and obstacle data are used.</p> <p>A significant obstacle includes, but is not limited to, objects which penetrate the Obstacle Assessment Surface.</p> <p>These objects include but are not limited to:</p> <p>Any obstacle with a height above the ground of 1 m or more within 100 m of both sides of the runway centreline and abeam the runway or clearway (if a clearway exists).</p> <p>Any obstacle that penetrates a surface starting 100 m on both sides of the runway centreline and at 1 m above the nearest runway centreline elevation and extending 1.2% until reaching 75 m above the lowest elevation of all runway surfaces. This slope of 1.2% reaches a height of 75m at approximately 6 km.</p> <p>Any obstacle 75 m or higher above the lowest elevation of all runway surfaces in the remainder of Area 2.</p>	
Survey Control	<p>A system of points with established positions and/or elevations which are used as fixed references for surveying or for correlating map features. Local Control is a survey control system established in a local area and which may or may not be tied to the National Geodetic Control Networks</p>	
Systematic Errors	<p>The effects of systematic errors can be minimised via instrument calibration and/or the use of an appropriate mathematical model. From the statistical point of view it should be noted that Systematic Errors would affect all repeated observations in the same way. So they cannot be discovered by repetition of observations. An elimination of systematic errors can only be accomplished by the use of the appropriate mathematical model. Thus a triangle on the Earth's surface may be treated by one of the three functional models: plane, spherical, or ellipsoidal. The choice of one over the others will result in different values of systematic errors.</p>	
Tactical Air Navigation	<p>An ultra-high frequency electronic rho-theta air navigational aid, which provides suitably equipped aircraft a continuous indication of bearing and distance to the TACAN station.</p>	

<u>Word</u>	<u>Definition</u>	<u>Origin</u>
Terrain	<p>The surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles.</p> <p>Note.— In practical terms, depending on the method of data collection used, terrain represents the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as “first reflective surface”.</p>	Annex 15
Threshold	The beginning of that portion of the runway usable for landing.	Annex 14 Vol. I
Touchdown	<p>The point where the nominal glide path intercepts the runway.</p> <p><i>NOTE: ‘Touchdown’ as defined above is only a datum and is not necessarily the actual point at which the aircraft will touch the runway.</i></p>	Annex 10
Touchdown and Lift-Off Area	A load bearing area on which a helicopter may touch down or lift-off.	Annex 14 Vol. II
Touchdown Zone	The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.	Annex 14 Vol. I
Traceability	Ability to trace the history, application or location of an entity by means of recorded identifications (ISO 8402*).	Annex 15
Very High Frequency Omni directional Radio Range	A very high frequency, radio navigational aid, which provides suitably equipped aircraft with a continuous indication of bearing to and from the VOR station.	
Very High Frequency Omni directional Radio Range/Tactical Air Navigation	A navigational facility consisting of two components, VOR and TACAN, which provide three services: VOR azimuth, TACAN azimuth, and TACAN slant range.	

**Table 2: Definitions Used**

End of Document