Reference: VTS41-12.1.3

# Purpose

This document should be used to submit proposals for additions, amendments or deletions of terms in the International Dictionary of Marine Aids to Navigation (Dictionary). Proposals will be considered by the Dictionary Working Group (DWG) of the IALA Policy Advisory Panel (PAP) and the Dictionary will be amended if the proposal(s) is approved.

# Proposed amendment of the Dictionary

Please use the following table to submit proposals for additions, amendments or deletions of terms in the Dictionary.

\* Sources: - VTS41

- IALA Guideline 1111 (May, 2015)

New document approved by Council61 contains 73 definitions:

| **Term** | **Dict. Nbr** | **Source**  **(meeting/**  **doc/**  **person)** | **Old definition** | **Proposed definition**  **English** | **Proposed definition**  **French** | **Proposed definition**  **Spanish** | **Reason for change** | **Date** | **Accept/**  **Reject** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Availability | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 5. (RCM & Reliability), sub 1. (Reliability): *“Availability (qualitative)”*  *“The property of a device or system of being ready for use when required.”*  yes, under cat. 5. (RCM & Reliability), sub 1. (Reliability): *“Availability (quantitative)”*  *“The probability that a system will be available for operation at an arbitrarily chosen instant in the future. It may be expressed as the ratio MTBF/(MTBF + MTTR).”*  - yes, under cat. 10. (e-Navigation), sub 1 (General e-Navigation terms):  *“The percentage of time that an aid, or system of aids, is performing a required function under stated conditions. Non-availability can be caused by scheduled and/or unscheduled interruptions.*  *– Signal availability. The availability of a radio signal in a specified coverage area.*  *– System availability. The availability of a system to a user, including signal availability and the performance of the user’s receiver. “* | This is the probability that a system will perform its specified function when required. |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Azimuth (Antenna) Side Lobes | cat 9: VTS, sub 1: VTS terms | \* | no | Antenna responses (in azimuth) outside the intended radiation beam. Weighting of the illumination function allows a significant reduction of these lobes, but some response outside the intended direction is unavoidable, normally presenting an irregular pattern with "peaks" and "nulls". The side lobes may produce responses from targets in unwanted directions, allowing disturbing signals (intentional or not) to enter the receiver, and in addition makes the radar detectable by receivers, which are not illuminated by the main beam. |  |  | new | 2016-03-09 | - yes, take definition over |
| Blind Spots | cat 9: VTS, sub 1: VTS terms | \* | no | Typically resulting from either Blind Range (the Range corresponding to an echo delay of one or more pulse repetition intervals: the echo then arrives at the receiver while the radar is transmitting a new pulse and the receiver is blanked) or Blind Speed (target speeds which produce Doppler shift which are integer multiples of the radar pulse repetition frequency (PRF), which are therefore aliased to zero Doppler and cancelled by the clutter rejection filtering). Blind spots can also arise behind significant obstructions in the field of view (buildings, land masses, oil tankers). |  |  | new | 2016-03-09 | - yes, take definition over |
| Chart | cat 9: VTS, sub 1: VTS terms | \* | no | A map to aid navigation support. |  |  | new | 2016-03-09 | - yes, take definition over |
| Chirp | cat 9: VTS, sub 1: VTS terms | \* | no | Frequency modulation of the carrier frequency applied within the radar pulse to increase its bandwidth and therefore the range resolution (see also **Pulse Compression**). |  |  | new | 2016-03-09 | - yes, take definition over |
| Coherence | cat 9: VTS, sub 1: VTS terms | \* | no | Capability of a system to keep a stable phase reference during the target illumination time in order to properly exploit the received phase information for moving target indication (MTI), pulse Doppler processing or other purposes. |  |  | new | 2016-03-09 | - yes, take definition over |
| Confirmed track | cat 9: VTS, sub 1: VTS terms | \* | - no, only *“track”* under cat. 9. (VTS), sub 1 (VTS terms):  *“The path followed, or to be followed, between one position and another.”* | A track that has previously passed the criteria for track initiation, tentative track formation and has been subsequently promoted to a confirmed track. |  |  | new | 2016-03-09 | - yes, take definition over |
| Data Fusion | cat 9: VTS, sub 1: VTS terms | \* | no | In the tracking context, data fusion is the combining of observation updates from more than one sensor to create one track based on all available sensor information. |  |  | new | 2016-03-09 | - yes, take definition over |
| Decision Support Function | cat 9: VTS, sub 1: VTS terms | \* | no | A VTS decision support function assists the VTSO at an operational level. |  |  | new | 2016-03-09 | - yes, take definition over |
| Detection (in the context of an imaging system) | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 4. (Radio Aids), sub 1 (General Terms):  *“The process of extracting information from an electromagnetic wave.*  *Note 1: Often a non-linear conducting device is used.*  *Note 2: The use of the term for the action of a mixer is deprecated.*  *Note 3: Where there was no original modulating signal the use of the term Demodulation as an alternative for "detection" is deprecated. ”* | The VTSO can observe an object on the water surface. |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Doppler Shift | cat 9: VTS, sub 1: VTS terms | \* | no | Shift in frequency of a wave due to the relative motion between the transmitter and the receiver. Frequency shift is relative target velocity/wavelength. Radar echoes are shifted twice this value because this shift must be accounted for in both the forward and the return path. |  |  | new | 2016-03-09 | - yes, take definition over |
| Doppler Side Lobes | cat 9: VTS, sub 1: VTS terms | \* | no | When using Doppler processing (or MTI) the integrated ideal pulse always presents a response outside the integration peak (across all Doppler filters) known as Doppler side lobes. Their main effect is to limit the capability to discriminate weak returns in proximity of strong returns (with side lobes of the same order of magnitude as the primary response of the weak return). |  |  | new | 2016-03-09 | - yes, take definition over |
| False Plot | cat 9: VTS, sub 1: VTS terms | \* | no | A plot resulting from a phenomenon unrelated to VTS operation or from a  reflection of an actual object. |  |  | new | 2016-03-09 | - yes, take definition over |
| False Track | cat 9: VTS, sub 1: VTS terms | \* | - no, only *“track”* under cat. 9. (VTS), sub 1 (VTS terms):  *“The path followed, or to be followed, between one position and another.”* | A track created using sensor data that happens to behave in target-like manner but actually relates to phenomena unrelated to VTS operation or results from reflections of actual objects.  **Note:** The sensors and indeed the tracking process may not be able to differentiate between small detectable objects unrelated to VTS operation (birds for example) and at the same time to correctly detect and track small objects that are related to VTS operation. |  |  | new | 2016-03-09 | - yes, take definition over |
| Frequency Modulation Continuous Wave | cat 9: VTS, sub 1: VTS terms | \* | - yes, may be this definition of *“Frequency-modulated radar”* under cat. 4. (Radio Aids), sub 3 (Radar, Radar beacons and Radar Reflectors):  *“Alternative term: F.M. radar. A form of radar in which the radiated wave is frequency modulated, and the frequency of an echo is compared with the frequency of the transmitted wave at the instant of reception, thus enabling range to be measured.”*  - no, only *“Frequency Modulation (FM)”* under cat. 5. (RCM & Reliability), sub 3 (Information Processing and Transmission):  *“Angle modulation of a sine-wave carrier in which the instantaneous frequency of the modulated wave differs from the carrier frequency by an amount proportional to the instantaneous value of the modulating wave.”* | A type of radar where a continuous wave instead of pulse is transmitted. The range information is derived by frequency modulating the carrier with a saw tooth waveform and comparing the echo FM modulation envelope with the reference. |  |  | new | 2016-03-09 | - yes, take definition over |
| Ghost Targets (Ghost Echoes) | cat 9: VTS, sub 1: VTS terms | \* | no | Undesirable radar echoes resulting from a number of sources. For example multipath related wave reflections caused by large structures or surface reflections, time side lobes, antenna azimuth side lobes, and Doppler side lobes. |  |  | new | 2016-03-09 | - yes, take definition over |
| Identification (in the context of an imaging system) | cat 9: VTS, sub 1: VTS terms | \* | - no, not in this context e.g. under cat. 4. (Radio Aids), sub 2. (Radio Beacons and Direction Finding Equipment): *“Identification signal”*  *“A letter or group of letters in Morse code or some other combination of dots or dashes or both introduced into the transmission to identify the beacon. In some cases two tones are employed.”* | The VTSO can positively identify the object (e.g. ship name or MMSI). |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Interference Rejection | cat 9: VTS, sub 1: VTS terms | \* | no | This function is included to seek to reduce or eliminate interference received from transmitters utilising the same or nearby frequencies. One common technique is to compare adjacent range cells in the present "live" video signal with the video signal from the previous sweep. The output video signal to the display device is inhibited should the comparison indicate the presence of interference. |  |  | new | 2016-03-09 | - yes, take definition over |
| Latency | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 10. (General Terms), sub 1 (General e-Navigation terms):  *“The time lag between the navigation observations and the presented navigation solution.”* | A measure of time delay experienced in a system. Used here to indicate the time from a sensor first gathering data relating to a target, to the time the corresponding data is presented to the user (e.g. VTSO display or decision support process). |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Map | cat 9: VTS, sub 1: VTS terms | \* | no | A representation on a flat surface of the whole or part of an area on earth. |  |  | new | 2016-03-09 | - yes, take definition over |
| Normal Weather and Propagation Conditions | cat 9: VTS, sub 1: VTS terms | \* | no | Are the conditions not exceeded 99% to 99.9 % of the time as defined by the individual VTS Authority. The rest of the time is considered having adverse weather and propagation conditions. |  |  | new | 2016-03-09 | - yes, take definition over |
| Plot | cat 9: VTS, sub 1: VTS terms | \* | no | A generic term to describe the report resulting from a sensor observation. |  |  | new | 2016-03-09 | - yes, take definition over |
| Plot to Track Association | cat 9: VTS, sub 1: VTS terms | \* | no | The process of determining correlation of new sensor plots with existing tracks. |  |  | new | 2016-03-09 | - yes, take definition over |
| Polarisation | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 6. (Power Supplies), sub 5 (Electrochemical Cells and Batteries) *“Polarisation (of an electrochemical cell)”*:  *“An effect at an electrode surface that diminishes the potential difference between the electrode and the electrolyte when a current is flowing.”*  - yes, under cat. 4. Radio Aids), sub 1 (General Terms) *“Polari****z****ation”*:  *“That attribute of an electromagnetic wave which describes the direction of the electric field vector.”* | Of a radar signal is determined by the orientation of the electrical field. In the case ofcircular polarisationthe field rotates left or right. |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Pulse | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 4. (Radio Aids), sub 1 (General Terms)  *“An electrical disturbance whose duration is short in relation to the time scale of interest and whose initial and final values are the same.”* | Typically a pulse (which is modulated in the case of pulse compression radar) of RF energy transmitted from the radar. |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Pulse Compression | cat 9: VTS, sub 1: VTS terms | \* | no | A technique used to achieve a wide pulse bandwidth (and, therefore, enhanced range resolution) using long pulse (for high pulse energy with limited peak power) by introducing an intra-pulse modulation (e.g., chirp frequency modulation or Barker discrete phase modulation) and performing a correlation on the received echo. |  |  | new | 2016-03-09 | - yes, take definition over |
| Radar | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 4. (Radio Aids), sub 3 (Radar, Radar beacons and Radar Reflectors):  *“A radio determination system which measures distance and usually direction by a comparison of reference signals with the radio signals reflected or retransmitted from the object whose position is to be determined.”* | As referred to in this document (= Guideline 1111, red.), this relates to all aspects of the radar from sensor through to the availability of radar information (for presentation) from one or more radar sensors to the VTSO. |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Radar Cross Section | cat 9: VTS, sub 1: VTS terms | \* | no | An assessment of the cross sectional area presented by a reflector (typically a target or unwanted “clutter”) to the transmitted radar energy. The RCS can vary with frequency and target attitude. |  |  | new | 2016-03-09 | - yes, take definition over |
| Radar Information | cat 9: VTS, sub 1: VTS terms | \* | no | A generic term potentially referring to the radar picture/video, target data, clutter data, topographical data, aids to navigation SARTs, etc.. |  |  | new | 2016-03-09 | - yes, take definition over |
| Radar PFA | cat 9: VTS, sub 1: VTS terms | \* | no | Is the probability of false alarm at the output of a radar, subsequent to plot extraction, but prior to tracking, and presentation. In this context, the PFA is defined as relating to the number of false target declarations per radar cell (range cell x azimuth cells), arising from a noise plus clutter environment (only). Note, in some systems the boundary of the radar and its achieved PFA complicate this definition – clarification may be required to avoid misunderstanding arising from, for example, noise related threshold crossings vs. unwanted radar energy reflections (unwanted targets, ghost targets etc.). |  |  | new | 2016-03-09 | - yes, take definition over |
| Radar Plot | cat 9: VTS, sub 1: VTS terms | \* | no | Is the generic term to describe the report resulting from a radar sensor observation. Each report contains positional information, possibly supplemented by other data. |  |  | new | 2016-03-09 | - yes, take definition over |
| Radar Sensor | cat 9: VTS, sub 1: VTS terms | \* | no | The transmitting, receiving and signal handling apparatus, delivering radar information to the tracking and presentation features of VTS. |  |  | new | 2016-03-09 | - yes, take definition over |
| Radar Service | cat 9: VTS, sub 1: VTS terms | \* | no | A service that delivers all radar-derived data, such as radar image, radar plots and radar tracks. |  |  | new | 2016-03-09 | - yes, take definition over |
| Radar Target | cat 9: VTS, sub 1: VTS terms | \* | no | An object about which information is sought with radar equipment. |  |  | new | 2016-03-09 | - yes, take definition over |
| Range Ambiguous Returns | cat 9: VTS, sub 1: VTS terms | \* | no | The measured range of a target typically assumes that the target true range is less than the first range ambiguity (the Range corresponding to an echo delay of one pulse repetition interval) whereas large targets beyond this range can be detected but typically with (incorrect) ambiguous range measurement. Techniques exist for the resolution of range ambiguity if required. See also blind spots above. |  |  | new | 2016-03-09 | - yes, take definition over |
| Range Side Lobes | cat 9: VTS, sub 1: VTS terms | \* | no | See **Time Side Lobes** |  |  | another definition | 2016-03-09 | - no, don’t copy this definition, see *“Time Side Lobes”* |
| Receiver Dynamic Range | cat 9: VTS, sub 1: VTS terms | \* | no | Essentially the range of signal levels over which a receiver can operate. The low end of the range is governed by its sensitivity whilst, at the high end, it is governed by its overload or strong signal handling performance. |  |  | new | 2016-03-09 | - yes, take definition over |
| Recognition (in the context of an imaging system) | cat 9: VTS, sub 1: VTS terms | \* | no | The VTSO can recognize an object and classify it according to its shape (such as a container ship or a ferry boat). |  |  | new | 2016-03-09 | - yes, take definition over |
| Reliability | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 1. (General Terms), sub 1 (Basic Terms):  *“Ability of a device or system to satisfy the requirements of its intended use within defined limits and for a stated period of time.”*  - no, not in this context e.g. under cat. 10. (e-Navigation), sub 1. (General e-Navigation terms): *“Reliability (of an observation)”*  *“A measure of the effectiveness with which gross errors may be detected.*  *This internal reliability is usually expressed in terms of marginally detectable bias (MDB).”*  - no, not in this context e.g. under cat. 10. (e-Navigation), sub 1. (General e-Navigation terms): *“Reliability (of a position fix)”*  *“A measure of the propagation of a non-detected gross error in an observation to the position fix.*  *This "external" reliability is usually expressed in terms of marginally detectable error (MDE).*” | The probability that a system, when it is available performs a specified function without failure under given conditions for a given period of time. |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Sea Characteristics | cat 9: VTS, sub 1: VTS terms | \* | no | Often described by sea state but additional parameters can also be of interest. Sea characteristics include wave/swell height, direction and speed of waves/swell, distance between waves/swell, salinity etc.. |  |  | new | 2016-03-09 | - yes, take definition over |
| Sensor | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 5. (RCM & Reliability), sub 4 (Devices; Miscellaneous Terms):  *“Alternative term: Detecting element. In a measuring unit, the element which responds directly to the quantity to be measured.“* | In the tracking context, a sensor is a device for observing and measuring, as a minimum, position information for a target or potential target. |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Sensor PFA | cat 9: VTS, sub 1: VTS terms | \* | no | Is the probability of false alarm (plot) at the output of a sensor, subsequent to plot extraction, but prior to tracking, and presentation. This is generally expressed as an average number per unit area. |  |  | new | 2016-03-09 | - yes, take definition over |
| Signal to Noise ratio | cat 9: VTS, sub 1: VTS terms | \* | no | The ratio of a measurement of the power of a return from a target vs. the local sensor noise around the location of the target. |  |  | new | 2016-03-09 | - yes, take definition over |
| Squint | cat 9: VTS, sub 1: VTS terms | \* | no | The potential angular difference between antenna broadside and the antenna beam pointing direction. This angular difference may change with transmission frequency. The effect can be fully compensated. |  |  | new | 2016-03-09 | - yes, take definition over |
| Standard Atmospheric Condition | cat 9: VTS, sub 1: VTS terms | \* | no | The International Commission of Air Navigation uses a definition for a standard atmosphere, defining temperature and pressure relative to the height. In the troposphere (0 metres to 11,000 metres), the temperature is defined to be 15 °C at the surface and changing -6.5 °C/km. |  |  | new | 2016-03-09 | - yes, take definition over |
| Swerling Cases | cat 9: VTS, sub 1: VTS terms | \* | no | A series of mathematical models representing RCS fluctuations to characterise the statistical behaviour of reflected radar signals from a target (see also **Target Fluctuations**). |  |  | new | 2016-03-09 | - yes, take definition over |
| Target Fluctuations  (also known as Glint or Swerling Characteristic) | cat 9: VTS, sub 1: VTS terms | \* | no | Fluctuation of a target radar cross section (RCS) (and, therefore, of the received echo amplitude) due to changes in the target attitude and illuminating frequency. For complex targets (consisting of a number of reflecting surfaces), RCS is normally strongly dependent on the angle of observation. |  |  | new | 2016-03-09 | - yes, take definition over |
| Target Separation  (also known as Target Resolution) | cat 9: VTS, sub 1: VTS terms | \* | no | The ability to successfully identify two discrete detectable, similarly sized targets when closely spaced in either range or azimuth. |  |  | new | 2016-03-09 | - yes, take definition over |
| Tentative Track | cat 9: VTS, sub 1: VTS terms | \* | no | In the early part of the track lifecycle, a track is considered to be a tentative track until sufficient criteria are passed for it to be promoted to a confirmed track or for it to be discarded as a likely false track. |  |  | new | 2016-03-09 | - yes, take definition over |
| Time Side Lobes  (or Range Side Lobes) | cat 9: VTS, sub 1: VTS terms | \* | no | When using **Pulse Compression** the correlated pulse always presents responses outside the correlation peak (before and after it) known as time (or range) side lobes. Their main effect is to limit the capability to discriminate weak returns in proximity of strong returns (with side lobes of the same order of magnitude as the primary response of the weak return). |  |  | new | 2016-03-09 | - yes, take definition over |
| Track | cat 9: VTS, sub 1: VTS terms | \* | - yes, under cat. 9. (VTS), sub 1 (VTS terms):  *“The path followed, or to be followed, between one position and another.”* | The geo-spatial data, accumulated by the system, relating to an object of interest. As a minimum, this consists of unique identity, timestamp, current position and velocity, the associated quality of that information and other relevant attributes. |  |  | another definition | 2016-03-09 | - yes, take definition over |
| Track Coasting | cat 9: VTS, sub 1: VTS terms | \* | - no, not in this context e.g. under cat. 1. (General Terms), sub 2. (Navigation): *“Coasting”*  *“The navigation of coastal shipping. Note: In France the navigation of coastal shipping within a limited area is called bornage.”* | A feature that maintains tracks in the absence of expected sensor updates. |  |  | new | 2016-03-09 | - yes, take definition over |
| Track Initiation | cat 9: VTS, sub 1: VTS terms | \* | no | This is the process of first creating a track from plots that could not be associated with existing tracks. |  |  | new | 2016-03-09 | - yes, take definition over |
| Track Merging | cat 9: VTS, sub 1: VTS terms | \* | no | As two approaching tracks come together, it may not be possible for the available sensors to individually discriminate and therefore to measure their continued presence and position. If this situation persists for some time, one of the tracks may be maintained whilst the other is terminated. |  |  | new | 2016-03-09 | - yes, take definition over |
| Track Splitting | cat 9: VTS, sub 1: VTS terms | \* | no | A single track may unpredictably split into two or more discernible objects which may invoke rules for track initiation on some or all of the resultant likely tracks. |  |  | new | 2016-03-09 | - yes, take definition over |
| Track Swapping | cat 9: VTS, sub 1: VTS terms | \* | no | The (usually unwanted) transfer of a track identity (track label) to another track. This can break the intended association between a track and a physical object. |  |  | new | 2016-03-09 | - yes, take definition over |
| Track Termination | cat 9: VTS, sub 1: VTS terms | \* | no | The process of permanently removing a track. |  |  | new | 2016-03-09 | - yes, take definition over |
| Tracking | cat 9: VTS, sub 1: VTS terms | \* | no | The process of following an object to enable historical, current and future target positional and velocity information to be displayed and otherwise processed in support of the VTS system objectives. |  |  | new | 2016-03-09 | - yes, take definition over |
| Tracking PFA | cat 9: VTS, sub 1: VTS terms | \* | no | Is the probability of false track at the output of the tracking process, prior to presentation. This is normally defined as number of occurrences per unit area per unit time. |  |  | new | 2016-03-09 | - yes, take definition over |
| VTS Equipment | cat 9: VTS, sub 1: VTS terms | \* | no | Within document IALA Guideline No. 1111: VTS Equipment refers to the individual items of hardware and software which make up the VTS System. |  |  | new | 2016-03-09 | - yes, take definition over |
| VTS System | cat 9: VTS, sub 1: VTS terms | \* | no | Within document IALA Guideline No. 1111: the VTS System is considered to be the hardware, software and their behaviour as a coherent entity. This excludes personnel and procedures. |  |  | new | 2016-03-09 | - yes, take definition over |