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| IALA Guideline |

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VTS RADIOTELEPHONY Communications

Edition 1.0

Document date

Revisions to this IALA Document are to be noted in the table prior to the issue of a revised document.

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| Date | Page / Section Revised | Requirement for Revision |
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|  |  |  |
|  |  |  |

1. INTRODUCTION 5

2. AIMS AND OBJECTIVES 5

3. GROUND RULES 5

3.1. PLAIN LANGUAGE 5

3.2. Cultural differences 6

4. HOW TO USE VHF 7

5. HOW TO COMPILE A MESSAGE 7

6. HOW TO DELIVER A MESSAGE 8

6.1. Preparation 9

6.2. Speed 9

6.3. Voice volume 9

6.4. Words grouping and pausing 9

6.5. Nuclear stress 10

6.6. Pronunciation of letters 10

6.7. Plain text 10

6.8. Abbreviations 10

6.9. Result oriented messages 10

6.10. Repetition 10

7. HOW TO INTERPRET A MESSAGE 10

7.1. How to use A radio device in receiving messages 11

7.1.1. Correct frequency. 11

7.1.2. Headset 11

7.1.3. Squelch and volume 11

7.2. Influence of internal and external factors in receiving messages 11

7.2.1. Mental prepared 11

7.2.2. Distractions 11

8. DEFINITIONS 11

9. ACRONYMS 12

10. REFERENCES 12

List of Tables

Table 1 Example of a table with the significant information in the first column 4

Table 2 Example of a table with the significant information in the first row 4

Table 3 Example of a table with coloured rows 4

Table 4 Example table 4

List of Figures

Figure 1 Example figure 4

Figure 2 Another example figure 4

List of Equations

Equation 1 Geographical range 4

Equation 2 Theory of Special Relativity 4

# INTRODUCTION

As the maritime industry becomes more globalised with a diversified manpower originated from different parts of the world, effective and clear communication based on mutual intelligibility, regardless of interlocutors’ linguistic and cultural backgrounds, has been considered as the key.

A significant amount of attention needs to be paid to this growing phenomenon considering that the distribution of seafarers from non-native English regions are considerably high; the number of crew members belonging to these areas is expected to increase in the future. In order to cope with the cross-cultural VTS communication in a clear and well-organized manner, in this sense, the understanding and employing effective communication strategies is regarded highly essential. It is therefore crucial that both non-native and native English speakers speak in a structured and effective manner to facilitate mutual understanding.

In light of the above it was emerged, during IALA Symposium taken in Istanbul in 2012, the need to produce a new stand-alone document related to the VTS communication and procedures in order to facilitate clear and unambiguous transfer of information and it was recognized it should be a key component of IALA’s future work program.

# AIMS AND OBJECTIVES

The scope of the VTS communication strategies is quite varied, for example: the correct use the VHF transceivers; the utilization of the standardized terminology and phraseology (i.e. Standard Marine Communication Phrases (SMCP)) and plain language for dealing with unusual and emergency situations; paralinguistic transmitting techniques (e.g. speech rate, tone, word grouping, pause, nuclear stress); the understanding of cross-cultural communication (e.g. different cultural perceptions toward problem-solving, language anxiety, and accommodation ability) and the effective structure of VTS messages.

This document should provide support to VTS personnel that will promote best practice in effective VTS radio communications. It should be a working document that is practical, limited in length and user friendly. The document is harmonised with other existing relevant documentation that provide communication guidance. It should also provide advice, that not only coaches new VTS personnel but guards against complacency with more experienced operators.

# GROUND RULES

When people interact in a cross-cultural environment, they need to adjust their speech and vocal patterns in order to increase efficiency and mutual understanding by accommodating \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The main duty for VTSOs is to collect, analyse and disseminate information. This task has to be accomplished during routine activities and in emergency situation where the VTSOs have to show skills and ability to work under pressure.

Following abundant research conducted by specialised agencies, there have been many shipping accidents in which language misunderstandings when speaking through VHF radio have been found to be the main cause or a contributory factor to the accident. The efficient use of the English language at sea (Maritime English) is a key factor in ensuring safe ships and SMCP should be used to get around the problem of language barriers at sea and avoid misunderstandings which can cause accidents. Where standard doesn’t exist it’s recommended to use plain language.

## PLAIN LANGUAGE

Plain language is a natural, spontaneous, and common form of language, generally when unexpected and emergency situations that are not fully covered by the typical SMCP phraseology are encountered. Since plain language proficiency plays a pivotal role in dealing with, negotiating and solving unexpected situations, the core linguistic features of plain language in radiotelephony communications (e.g. clarity, directness, intelligibility, and concision) should be maintained at all times. Of paramount importance is that plain language is mostly used under quite stressful conditions where unfamiliarity occurs both for VTS operators and seafarers; the clear and concise language used should be first considered so that the speakers’ intentions are clearly delivered. Besides unusual and/or emergency situations, plain language can be also used for a wide range of daily VTS communicative situations such as sharing, negotiating, and/or instructing navigational information. From this perspective, plain language can be defined as something that the VTS operators should use in their daily VTS communications, when the appropriate ready-made phraseologies do not exist in SMCP. In this sense, the message structures and linguistic characteristics of plain language should be clear enough so that linguistic and cultural barriers posed to interlocutors could be resolved. It is aligned with the purpose of SMCP which is designed for clear and concise VHF communication between interlocutors with different linguistic and cultural backgrounds, by minimizing ambiguity while increasing clarity of the message being delivered. Recent studies support the effects of plain language, reporting that communication through plain language increases target audiences’ intelligibility by at least 30%—and on some occasions by up to 90%.

## Cultural differences

As the importance of communication with multinational seafarers from different parts of the world has been increased, more attention is now devoted to the issue of cross-cultural awareness in VTS communication. When interlocutors have different cultural backgrounds, they could possess different linguistic perceptions of one specific situation based on their own cultural experiences and assumptions. This increases a possibility of making errors and leading to misunderstanding in communication, which are regarded as one of the major human errors that cause accidents at sea. Miscommunications of this type can be a serious threat to the safety of navigation, specifically when unexpected and challenging situations occur. Moreover, a considerable amount of research in the field of cross-cultural safety communication has reinforced the point that people from different cultural backgrounds have different forms of situational awareness and ways of speaking. This leads their counterparts to develop misled interpretations of target situations. On top of this, the communicative problems which result from different levels of English competency (e.g. understanding foreign language anxiety that a speaker at a lower language level expresses) and the misinterpretation of the message due to the intense interventions of speakers’ native language/mother tongue (e.g. different articulations in pronunciation, accents and intonation) have been pointed out as requiring both parties to make mutual efforts.

In order to figure out the different methods of exchanging information across cultures, first of all, a general understanding on high- and low-context cultures is required. High- and low-context communication refers to different cultural tendencies regarding the degrees of explicitness and/or directness when a message is conveyed. Generally, some people tend to be more oriented toward a higher context culture (i.e., using implicit and indirect forms of language) whereas others are more on the lower context side (i.e., communicating in an explicit and straightforward fashion). VTSO should be mindful that these two different modes of communication can cause serious communicative breakdowns as a result of different expectations regarding what is an adequate amount of information and the degrees of explicitness in terms of ensuring navigational safety. Therefore, when a VTS communication between different cultures is conducted, VTSOs should ensure the following:

* any possible crucial portion of information has to be shared with navigating officers in order to make a common perception of potential danger;
* information that requires actions from navigating officers must be fully clarified with simplified and clear questions in order to agree a desired action;
* navigating officers should be required to use read-back technique, especially when information provided by a VTSO includes instructions.

# HOW TO USE VHF

This section refers to the correct use of audio equipment.

The correct use of radio equipment is essential if transmissions are to be successfully received and understood at the first attempt. Here are reported some suggestions that VTS operators should keep in mind in order to proceed with a correct use of VHF equipment:

1. Headset
   1. In many situations, particularly in noisy or difficult conditions, the use of headsets fitted with a noise cancelling microphone is preferable to loudspeakers: a headset will aid concentration and the audibility of the incoming calls.
2. Microphone
   1. The microphone should be as close to the mouth as the system requires
3. PTT (Push To Talk)
   1. Completely push in the PTT button, wait a second, and then just start talking. This procedure could be necessary when you are using a remote VHF
   2. Release the pressel switch promptly. Depress the transmit switch fully before speaking and do not release it until the message is completed. This will ensure that the entire message is transmitted.
   3. Be aware if your PTT is remains pressed after a communication or in other words on releasing the pressel switch, ensure that the radio returns to the receive condition. An irritating and potentially dangerous situation in radiotelephony is a ‘stuck’ microphone button. Operators should always ensure that the button is released after a transmission and the microphone placed in an appropriate place that will ensure that it will not inadvertently be switched on.
   4. After a communication leave enough time (few seconds) before start to communicate again. This could avoid an overlapping of communications between transmitter and receiver.
4. Log
   1. Whenever practical to do so, radio logs should be maintained and saved for further uses. The log should be written legibly in the operator’s own hand or electronically and should include relevant information such as time and date, name of station calling, summary part of communication.
5. Radio check
   1. Ensure that the correct frequency is in use.
   2. A VTS station is understood to have good signal strength and readability unless otherwise notified. Strength of signals and readability will not be exchanged unless VTS cannot clearly hear another vessel. A VTS that wishes to inform ship of his signal strength and readability will do so by means of a short and concise report of actual using radio check procedures as reported in SMCP.

# HOW TO COMPILE A MESSAGE

This section refers to the preparation, formulation and structure of messages. Specifically, the content of VTS radio communications.

To convey messages more clearly and understandably, one must consider the following communication rules for plain language:

1. Keep sentences short and simple:
   1. Shorter and more straightforward sentences help listeners to not only easily understand the speaker’s intended message but also better remember core points.
   2. Each sentence should contain only one topic.
   3. Complex sentence structures make it difficult for listeners to interpret messages instantaneously, as they require additional time for language processing.
   4. When communicating with those with lower language proficiency, one can considerably enhance his or her intelligibility by using short and simple sentences.
2. Keep the subject, verb, and object as near to one another as possible:
   1. The most natural and intelligible order for English sentences is subject–verb–object, and this basic form is seen as essential to enhanced intelligibility.
   2. The insertion of modifiers, phrases, and clauses between these basic structural elements increases the chances of a misunderstanding by preventing listeners from catching the core meaning of a sentence.
3. Use the active voice:
   1. The active voice is a form which emphasises the subject performing an action, whereas the passive voice focuses on the object being acted upon by a verb.
   2. The active voice has a strong communicative effect, allowing one to construct a more clear and direct message, and also emphasises the agency of sentence subjects.
4. Use familiar, common and frequent words:
   1. Choice of vocabulary is one of the most significant factors affecting clear and effective communication, specifically in multilingual environments.
   2. Words must be selected carefully such that speakers with different English competencies can clearly catch the intended meaning, for example, by avoiding unusual, obscure, and lengthy words as well as regional dialects.
   3. Replacing superfluous phrases with simpler words (e.g., to instead of in order to, can instead of is able to, many instead of a number of) is also a good strategy.
   4. The words listed in the SMCP must be considered as the first choices for vocabulary even when using plain language.
5. Make sentences positive rather than negative:
   1. Positive sentences are usually shorter and clearer because they generally use a single word in place of several (e.g., reject instead of do not accept) and are more straightforward (e.g., similar instead of not unlike).
   2. Without changing the intended meaning, positive sentences allow listeners to save time by reducing unnecessary mental work and conveying the point faster and more easily.
6. Spell out words

To promote better understanding when using numbers or letters (names of buoys, stations, call signs, etc.), spell out words as necessary using the tables defined in the SMCP.

# HOW TO DELIVER A MESSAGE

This section refers to transmitting techniques used in VTS radio communications.

VHF radio communication is the most important means of day-today VTS communication. When communicating orally using radio devices, information exchanges and broadcasts must be as professional, clear, concise and precise as possible. In order to achieve an effective communication, the following steps should be considered.

## Preparation

1. Do not transmit if you are not ready.
2. listen out on the frequency to be used to ensure that there will be no interference with a transmission from another station (no communications are incoming).
3. Do not use VHF for no official communications.
4. Be polite and professional.

## Speed

Speech rate is the speed at which a speaker conveys his or her message. On average, the speech rate of an adult English native speaker is reported as between 150 and 190 words per minute (WPM). A wide range of research has been conducted on the effects of moderate speech rates, and meaningful findings have been made. A slightly slower speech rate than normal helps listeners comprehend spoken language and therefore improves the intelligibility and persuasiveness of the message. The importance of a moderate speech rate for intelligibility is well recognised, specifically in an environment in which people from different linguistic backgrounds speak with their own accents, intonation, and pronunciation originating from their mother tongues. Considering that speaking at a faster rate greatly hinders non-native speakers’ comprehension and increases their language anxiety, modulating speech at a slower rate of 120 WPM is highly recommended for clear and effective communication. Specifically, in emergency situations, a much slower rate of 100 WPM should be applied so important information can be clearly and accurately delivered under high-pressure and cognitively challenging conditions.

## Voice volume

Speak quietly when using whisper facilities, otherwise the volume should be as for normal conversation. Shouting causes distortion.

## Words grouping and pausing

1. Together with adjusting speech rate, one can employ word grouping and pausing strategies to increase his or her intelligibility in VTS communication. In other words, intelligibility can be enhanced considerably by dividing sentences into smaller groups of phrases according to a single unit of thought and by pausing briefly between word groups.
2. The effect of word grouping and pausing is specifically prominent for the following reasons:
   1. Speakers can moderate their speech rates by pausing between each word group.
   2. Pausing gives listeners time to process each pack of information delivered and for speakers to prepare subsequent information for delivery.
   3. Grouping and pausing contribute to the decreased use of unnecessary fillers like um, hm, and uh, which are reported to hinder mutual intelligibility.
3. Four words is generally recognised as the most intelligible unit of grouping and pausing for comprehensible and clear communication, and the division of units generally coincides with grammatical language structures.
4. Avoid filler words or hesitation sounds such as *‘ahhhhh, mmmmm, ehhhh’.*
5. Provide one phrase for one event. Use short sentences divided into sensible phrases which maintain a natural rhythm; they should not be spoken word by word. Where pauses occur, the PTT should be released to minimize transmission time and permit stations to break in when necessary.

## Nuclear stress

1. The voice should be pitched slightly higher than for normal conversation to improve clarity.
2. The placement of nuclear stress within a group of words plays a crucial role in the enhancement of intelligibility by helping listeners to catch the core meaning intended by a speaker in a more instant and direct manner. For this purpose, the most important part of the message, or keyword, should be spoken slightly louder, longer, and higher than its neighbouring words (e.g. What PART of your vessel / is AGROUND?).

## Pronunciation of letters

To help identify spoken letters of the alphabet a standard phonetic word alphabet is used. Each letter of the alphabet is represented by a uniquely pronounced word to enable consistent and accurate pronunciation.

## Plain text

Spelling is necessary when difficult radio conditions prevent the reception of an obscure word, or of a word or group, which is unpronounceable. Such words or groups within the text of plain language messages may be spelt using the phonetic alphabet.

## Abbreviations

Although originally designed to save time in writing, abbreviations will often save time in speech. Many abbreviations are so commonly used in normal speech that they are more familiar than their original unabbreviated form. The use of such abbreviations in radio transmissions is to be encouraged provided that:

1. They are quicker and easier to use than the full word.
2. They are sufficiently well known to avoid any confusion and subsequent confirmatory transmissions.
3. Where an abbreviation has more than one meaning, the intended meaning is obvious to the addressee from its context or frequent usage.

## Result oriented messages

A fundamental principle of VTS communications is that advice and instructions should be ‘result oriented’ only; leaving the execution to the vessel. The execution, such as courses to be steered or engine manoeuvres to be ordered, remains the responsibility of the person on board accountable for navigational decision making at that time

## Repetition

When communication is difficult, call signs should be transmitted twice. Phrases, words, or groups may be transmitted twice. If any part of a message is considered sufficiently important to need safeguarding, repeat the message, using the appropriate pro-word ‘Repeat …’.

# HOW TO INTERPRET A MESSAGE

This section refers to the accurate interpretation of radio communications received by a VTS.

Interpretation of the message requires skills as the encoding process. Just as confusion can arise from errors in encoding, it can also arise from decoding errors especially during emergency situations. The use of radio device and internal/external factors could be reasons that influence the decoding procedures. In order to achieve effective communications a number of actions should be considered.

## How to use A radio device in receiving messages

A properly configured VHF radio is essential for clear interpretation of the receiving calls:

### Correct frequency.

Ensure that the correct frequency is in use.

### Headset

The primary purpose of headsets is to reduce the noise in the work environment in order to avoid hearing loss and to facilitate clearer communication with vessels.

### Squelch and volume

1. Squelch should be used in order to suppress channel noise and it should be adjusted when radio is not receiving a transmission, if a weak signal is annoying, the operator can set the control a little higher thereby adjusting the squelch to open only when stronger signals are received. The squelch control can be used to set the radio volume by turning down the squelch until you hear background static, then set the volume. If you do not hear static with the squelch all the way down and the volume up, this is an indication that something is wrong with the radio. Squelch can be ‘opened’, which allows all signals entering the receiver’s discriminator tap to be heard. This can be useful when trying to hear distant, or otherwise weak signals.
2. Volume should be set at good level: no too low or incoming transmission could be lost, no too high in order to avoid annoying noise, especially if headset is being used.

## Influence of internal and external factors in receiving messages

Some factors such as feeling, health and mental state, culture, the work environmental should influence interpretation of the receiving calls

### Mental prepared

There are some causes, health and mental state, can contribute to this

### Distractions

Distraction could be caused by: the lack of ability to pay attention; lack of interest in the object of attention; or the great intensity or attractiveness of something other than the object of attention. Distractions come from both external sources, and internal sources. External distractions include factors such as visual triggers, social interactions, music, internet and phone calls. The physical working environment (temperature, ventilation, lighting, room dimensions, suitability of workstations, seating) if not properly set could cause loss of focus on communications. Multitasking and overload could also be considered as distractions in situations requiring full attention on a single object. There are also internal distractions such as hunger, fatigue, illness, worrying, and daydreaming. Both external and internal distractions contribute to the interference of focus on the interpretation of incoming messages. VTSOs have to be aware about the potential distractions and that a proper focus requires discipline and mastery to achieve, like any other skill.

# DEFINITIONS

*Suggested text:* The definitions of terms used in this IALA Guideline can be found in the International Dictionary of Marine Aids to Navigation (IALA Dictionary) at <http://www.iala-aism.org/wiki/dictionary> and were checked as correct at the time of going to print. Where conflict arises, the IALA Dictionary should be considered as the authoritative source of definitions used in IALA documents.

# ACRONYMS

IALA International Association of Marine Aids to Navigation and Lighthouse Authorities – AISM

IMO International Maritime Organization

PTT Push To Talk

SMCP Standard Marine Communication Phrases (IMO)

VHF Very High Frequency (30 MHz to 300 MHz)

VTS Vessel Traffic Services

VTSO Vessel Traffic Service Officer(s)

WPM Words per minute

# REFERENCES

1. Abcd
2. Efgh