

IALA GUIDELINE

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VTS VHF VOICE COMMUNICATION

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1. INTRODUCTION

Effective VTS VHF communications directly contribute to navigational safety and efficiency; conversely, ineffective communication and misunderstandings may contribute to near misses and accidents. Effective communication is therefore an essential part of a VTSO's duties. However, there remain inconsistent approaches to VHF procedure between personnel, VTS authorities and training establishments. The 2012 IALA VTS Symposium in Istanbul recognised the need to produce documents relating to VTS communication in order to facilitate clear and unambiguous communication.

The maritime industry comprises of personnel originating from many different parts of the world. It is crucial that native and non-native English speaking VTSOs speak in a structured and effective manner to facilitate mutual understanding.

The messages sent are received by several parties in the VTS area and can thereby improve the situational awareness of everyone. VTSOs are speaking to entire bridge teams and other vessels listening on the VHF channel whose backgrounds, experience, and knowledge will vary. Messages should be formulated in a procedural manner at all times. The VTSO should always communicate professionally in accordance with communication procedures.

2. AIMS AND OBJECTIVES

This guideline is intended to engage and support all VTSOs, new and experienced, in promoting best practice in effective VTS radio voice procedures. Furthermore it assists competent authorities, VTS authorities and training organisations when developing standardised operating procedures on communication.

It provides guidance that aims to ensure consistency amongst VTSOs when communicating on the VHF.

3. GENERAL COMMUNICATION RULES

Research and experience suggests that a causal factor in many shipping accidents is misunderstanding when speaking through VHF radio. The effective use of structured communication is a key factor in ensuring safe and efficient navigation.

One of the main duties of VTSOs is to collect, analyse and provide information. Structured communication applies to both routine and non-routine situations. Sometimes operations are performed in very busy areas leading to congested VHF frequencies and a high workload for the VTSO. The standardisation of communication is a powerful tool to manage these situations.

When people interact, they need to adjust their speech and vocal patterns in order to increase the likelihood of mutual understanding. These adjustments are general communication rules that should be considered by all VTSOs regardless of experience or native language whilst speaking on the VHF. The general rules are listed below in subsequent sections of this guideline.

In order to provide safe guidance to traffic the VTSO should be able to communicate in English. The model courses associated with IALA Recommendation R0103(V-103) on Standards for training and certification of VTS personnel contain a reference to the desired level of command of English.

3.1. STANDARDISED COMMUNICATION

VTSOs need to divide their attention amongst several tasks. Standardised communication significantly contributes to communication in different languages and aids time management. Standardised communication can help a VTSO to produce and understand communication with the minimum of effort thereby leaving processing space in the brain for the management of traffic.



Standardised communication is only useful when used in the proper way. This section strives to explain the rationale behind standardised communication.

People perform in different ways:

Skill based are those activities that we perform automatically. There is no conscious processing in the brain; we do not think when we execute them. Activities that we perform on this level are e.g. walking, bicycling, manipulating a mouse and so on. People are 'designed' to execute these tasks even better without conscious processing in the brain. Imagine for example: when you run down the stairs and suddenly wonder how you do that? You immediately improve your chances of falling down.

Rule based are activities that require more brain processing. These are executed on a sub-conscious level. They include activities that we perform very often. They become routine. Although they may be complex, the VTSO performed these activities so often that he does not really need to put much thought into them. For example, when someone asks you how much 2 times 2 is, you do not really need to think about this. You can say instantly that the answer is 4.

Knowledge based activities require active decision-making. These are matters that we need to figure out and we do this in our working memory. The VTSO needs to use his brain capacity to reach a solution. This brain activity is a single channel. We can only solve one problem at a time.

When we are in a situation that causes stress, either because of pressure or because of a difficult situation in the VTS area, the knowledge based level is affected the most. Stress limits our ability to think. It is therefore essential that communication is not also on a knowledge based level, because you may have difficulty to understand each other. Communication problems can take up a brain capacity that is very much needed for the management of traffic. If a VTS authority has communication procedures in place and the VTSO is disciplined enough to use them every time, the use of these procedures will be on a rule based level. This level is less likely to be affected by stress. This means that the VTSO can use his brain processing resources to solve the problem, while professional communication is maintained.

3.2. CULTURAL DIFFERENCES

Differing cultural experiences and backgrounds may result in different responses to situations. A lack of awareness of these differences could increase the possibility of making errors and leads to misunderstanding.

When VTSOs communicate cross-culturally special attention should be paid to the following:

- Crucial information should be shared with navigating officers in order to create a common perception of potential dangers, even if this information seems 'obvious'.
- Read-back techniques should be used when information may be misunderstood. E.g. number of persons on-board or information that would benefit others using the VTS area, instructions or advice.

3.3. USING VHF

The proper use of VHF equipment is essential if transmissions are to be successful. When VTSOs use VHF equipment, they should consider the volume and the position of the microphone. To ensure the complete reception of the message a proper push to talk (PTT) discipline is essential, since there may be a delay in transmission after pressing the PTT button. VTSOs should pause briefly before passing the message.

4. COMPILING A MESSAGE

Before VTSOs transmit, they must take a moment to **think**. This may sound rather obvious; however, it is one of the principal errors personnel do make. Native English speakers are particularly prone to this as they have the ability to respond immediately without needing time to translate a message received and/or construct a

response. VTSOs should provide considered responses in order to resist the natural pressure personnel put on themselves to respond quickly before they have had time to think.

This section refers to the structure and content of VTS radio communications.

4.1. MESSAGE MARKERS

In order to improve radio discipline, the VTSO should use the ‘message markers’ listed and explained in IALA Guideline 1089. This is in order to keep the communication short, to the point and clear for all users. There are eight Message Markers, but only seven should be used by VTS. The message marker ‘INTENTION’ is for ship to shore use only.

- INFORMATION
- WARNING
- ADVICE
- INSTRUCTION
- QUESTION
- ANSWER
- REQUEST

Pro-words complement the message marker and prepare the receiver for the nature and content for the message that will follow (e.g. ‘WEATHER’ before ‘INFORMATION’ and ‘COLLISION’ before ‘WARNING’).

4.2. MESSAGE STRUCTURE

The use of structure provides consistent message formulation and conveys a professional image to stakeholders. This technique also provides familiarity to the receiver, setting the tone of a safe and efficient VTS. VTS VHF communications should therefore be structured in order to give the best chance of understanding to the receiver and to keep the message as concise as possible.

Radio communications between coastal stations and ships have to comply with the ITU Radio Regulations¹. These Regulations prescribe the structure of radio communication messages.

Example of a basic VTS message structure (see also annex A):

1. Establish contact	(Name of vessel/Call sign) this is (<i>name</i>) VTS	
2. Exchange information	a. Message marker	See message markers
	b. Phrase(s)	
3. End of message	Over	When expecting a reply
4. End of conversation	Out	When expecting no reply

It is advised that a maximum of two message markers and two phrases are used in one transmission to avoid an overload on the recipient.

¹ Volume IVE, Recommendation ITU-R, M117 and following



4.3. GENERAL RULES FOR PHRASE CONTENT

There are some general rules for phrase construction and content, which should be considered as follows:

- Basic words are standardised ways of saying common things in phrases which promote consistency among operators. The common basic words and their meanings are detailed in annex B.
- Avoid unnecessary words (e.g. 'what time do you think your ETA is at the pilot station, thank you', should be: 'what is your ETA at the pilot station').
- Keep the subject, verb, and object as near to one another as possible.
- Use the active form (such as 'advice to...'; instead of passive 'you are advised to').
- Make sentences positive.
- Each phrase should contain only one topic.
- Information must be relevant, as accurate as possible and timely.
- Geographic locations - names used should be those on the chart or in Sailing Directions.
- Communication should be addressed to the give-way vessel first, and then the stand-on vessel.
- When providing traffic information the VTSO should use geographic locations rather than latitude and longitude.
- Spelling words and the proper use of numbers (names of buoys, stations, call signs, etc.), spell out words when deemed necessary using the tables in annex C.

4.4. ABBREVIATIONS

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 (e.g. ETA, ETD)
- 2 they are sufficiently well known to avoid any confusion and subsequent confirmatory transmissions.

5. DELIVERING A MESSAGE

This section refers to vocal delivery techniques used in VTS radio communications.

When communicating orally using radio devices, exchanges must be professional, clear, concise and accurate. In order to achieve effective communication, the following steps should be considered.

5.1. PREPARATION

Before you start transmitting you should prepare the message. Listen to the frequency to ensure that there will be no interference with a transmission from another station. Start your message when you are physically and mentally ready.

5.2. TONE AND VOLUME

The tone of the VTSO's voice is crucial for mutual understanding. A message should be supported by the tone of voice used by the VTSO. Research has indicated that how words are expressed is just as important as what words are used.



Transmissions should be sent with a tone of calm confidence, politeness and professionalism. No matter if a VTS receives over familiar or even aggressive transmissions an operator/supervisor must always remain professional.

The volume of the VTSO's voice is important. The volume of a transmission should be at a level used for normal conversation. Shouting is unprofessional and causes distortion and speaking too quietly could result in the message not being heard.

5.3. EMPHASIS ON KEYWORDS

The keyword, most important part of the message, should be spoken slightly louder, longer, and higher than its neighbouring words (e.g. WARNING SHALLOW water AHEAD of you).

5.4. SPEECH RATE

Speech rate is the speed at which a speaker conveys the message. Academic studies reported that on average, the speech rate of an adult English native speaker is between 150 and 190 words per minute (WPM). In an international environment in which people from different linguistic backgrounds speak with their own accents, intonation, and pronunciation it's crucial to maintain an appropriate level of speech rate in order to avoid speaking at a faster rate that could greatly hinder comprehension and increase language anxiety:

- modulating speech at a slower rate of around 120 WPM is highly recommended for clear and effective communication;
- 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.

5.5. WORD GROUPING AND PAUSING

Together with the adjustment of the speech rate, the VTSO can use word grouping and pausing strategies to increase the intelligibility of VTS communication. In other words, intelligibility can be enhanced considerably by dividing sentences into smaller groups of phrases and by pausing briefly between word groups. VTSOs can also moderate their speech rates by pausing between each word group.

The effect of word grouping and pausing is important for the following reasons:

- a It gives listeners the time to process each pack of information that is delivered. Furthermore, it enables speakers to prepare subsequent information for delivery.
- b It decreases the use of unnecessary fillers like 'um, hm, uh, ...', which hinders mutual intelligibility.

It is generally recognised that the use of four words in a phrase is best understood by listeners. Therefore phrases should be grouped and paused after four words if possible. This enhances comprehension and clear communication.

5.6. REPETITION

When communication is difficult, phrases, words, or groups may be transmitted twice. If any part of a message is considered sufficiently important to need safeguarding, the VTSO should repeat the message, using the appropriate basic words 'I repeat'.

6. 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 such as encoding. Just as confusion can arise from errors in encoding, it can also arise from decoding especially during emergency situations (see figure 1). The use of radio

devices and internal/external factors could be reasons that influence the decoding procedures. In order to achieve effective communication a number of actions should be considered as visualised in the next figure.

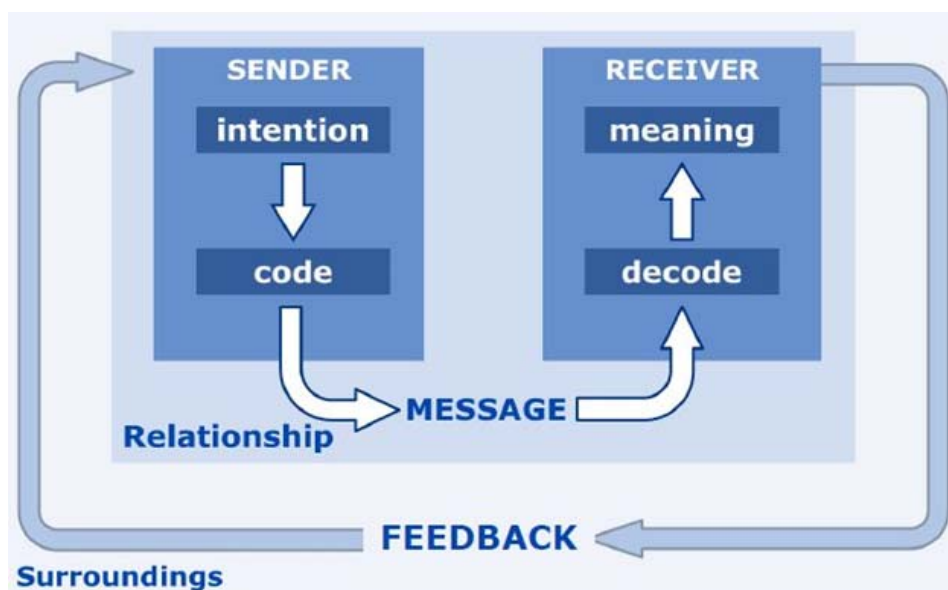


Figure 1 Communication process

6.1. EFFECTIVE LISTENING SKILLS

Effective listening skills are used to actively understand information provided by the speaker and it can be categorised into the following steps:

Hearing

Hearing involves the reception of sounds from the sender by:

- Avoiding interruptions.
- Clear one's mind of distractions.
- Focus on the speaker.

Clarity

The sender and receiver both have a responsibility to ensure that what is said is understood:

- Ask open questions to probe for further detail if required.
- Avoid asking leading questions.
- Avoid coming to conclusions before the sender finishes.
- Be aware of the sender's choice and application of words.
- Encourage feedback through questioning.

Interpretation

Interpretation not only requires verification of what the sender has said, but also the understanding of the information given.

Steps to ensure understanding are:

- Communicate your interpretation and verify its accuracy.
- Identify the main issues.



- Do not assume what the sender will say, particularly when receiving routine communications.

6.2. READ BACK

Read back could be considered a powerful feedback tool.

There are two main principles for reading back communications. The first principle is to benefit other mariners and the second is to ensure that the message is received correctly.

Read back is recommended when the message markers 'INSTRUCTION, ADVICE or WARNING' are used by the VTSO. This can be requested by the VTSO using the message: 'Read back'. The receiver should then read back the message as it was sent providing the VTS with confirmation that the previous sent message has been received correctly.

6.3. INFLUENCE OF INTERNAL AND EXTERNAL FACTORS

Some factors such as mental and emotional state, health, culture, working environment, distractions etc. can influence the interpretation of communications. Efforts should be made to minimise their negative effects on communications.

7. ACRONYMS

ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
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 Services Operator
WPM	Words Per Minute

8. REFERENCES

- IMO Resolution A.857(20) Guidelines for Vessel Traffic Services
- IMO Resolution A.918(22) IMO Standard Marine Communication Phrases (SMCP)
- ITU Radio Regulations, Volume IVE, Recommendation ITU-R M.1171-0 and subsequent chapters



ANNEX A EXAMPLE OF VTS COMMUNICATION

WEATHER INFORMATION

1. Establish contact	1.1 (Name of vessel/call sign)	
	1.2 THIS IS(name) VTS	
2. Exchange information	2.1 WEATHER + INFORMATION	Pro-word + Message Marker
	2.2 Weather Condition Statement	
	2.3 (Message Marker) ADVICE	Additional measures if relevant
	2.4 Provide relevant Advice	
3. End of message/conversation	OVER	

TRAFFIC INFORMATION

1. Establish contact	1.1 (Name of vessel/call sign)	
	1.2 THIS IS(name) VTS	
2. Exchange information	2.1 TRAFFIC + INFORMATION	Pro-word + Message Marker
	2.2 Name of vessel/s we are referring	Who
	2.3 Position of vessel/s using cardinal point/ bearing and distance	Where
	2.4 Destination of vessel/s	Intentions
	2.5 QUESTION	Additional measures if relevant
	2.6 Content of marker	
3. End of message/ conversation	OVER	



ANNEX B **BASIC WORDS**

The proper use of the basic words improves unambiguous communication from shore to ship and vice versa.

Basic Word	Meaning
Approved	Permission for proposed action granted
Check	Examine (something) in order to determine its accuracy, quality, or condition, or to detect the presence of something
Clearance	Authorised to proceed under the conditions specified
Confirm	I request verification of: (clearance, instruction, action, information)
Contact	Establish communications with... (your details have been passed)
Correction	A change that rectifies an error or inaccuracy
Disregard	Ignore last message
Incorrect	That is not correct
I repeat	I will state my message again
I spell	Phonetic spelling follows
Maintain	Continue in accordance with the condition(s) specified or in its literal sense, e.g. "Maintain your course"
Out	End of transmission. No answer is required or expected
Over	End of transmission. An answer is expected
Read back	Read back to me the message as you received it
Report	Pass requested information
Say again	A request to retransmit all or a portion of a transmission
Standby	Wait and I will call you



ANNEX C SPELLING OF LETTERS AND NUMBERS

Phonetic alphabets are used to distinguish between letters, which sound similar when transmitted over the radio. They are commonly used when transmitting call signs and in cases where a single letter is used to designate something.

For example:

Contact MS Liwai, I SPELL Lima India Whisky Alpha India, Liwai, on your starboard side.

A Alfa	H Hotel	O Oscar	V Victor
B Bravo	I India	P Papa	W Whisky
C Charlie	J Juliet	Q Quebec	X X-ray
D Delta	K Kilo	R Romeo	Y Yankee
E Echo	L Lima	S Sierra	Z Zulu
F Foxtrot	M Mike	T Tango	
G Golf	N November	U Uniform	

A few digits and numbers have a modified **pronunciation** compared to general English:

Number	Spelling	Pronunciation
0	Zero	Zeero
1	One	Wun
2	Two	Too
3	Three	Tree
4	Four	fower
5	Five	Fife
6	Six	Six
7	Seven	Seven
8	Eight	Ait
9	Nine	Niner
1000	Thousand	Tousand

Pronunciation is as follows:

Number	Pronunciation
963	Niner six tree
2,600	Two six zero zero
96,000	Niner six zero zero zero