Designation: F1583 – 95 (Reapproved 2012)

Standard Practice for
Communications Procedures—Phonetics[1]

1. Scope

1.1 *Establishment of Phonetics*—This practice covers the establishment of phonetics (including an alphabet, numerals, and punctuations), and the procedures for their use, in communications.

1.2 *Performance*— This practice is intended to facilitate the performance of communications personnel and systems under adverse communications conditions. This objective is achieved by employing easily recognized and used symbols and procedures that are highly resistant to errors. This system may be used with speech, print, or other media.

1.3 *Interoperability*— This practice is intended to facilitate the interoperability of communications personnel and systems among different organizations, especially if they use different internal practices. This system is also recommended for use within any organization for improved internal communications and uniformity of operations.

1.4 *English as Common Language*—This practice is intended for use with English. English has been designated by the International Civil Aviation Organization (ICAO) and others as a common interoperability language that is widely used in search and rescue, emergency, and international operations such as aviation, maritime, and military.

2. Terminology

2.1 The terminology used in this practice is derived from references (**1-10**).[2,3]

2.2 *automatic repeat-request (ARQ)*—a system of error control for information transmission in which the receiving station is arranged to detect a transmission error and automatically transmit a repeat-request signal to the transmitting station. The transmitting station then retransmits the message until it is either correctly received or the error persists beyond a predetermined number of transmittals.

2.3 *error correcting code*—a code in which each symbol conforms to specific rules of construction so that departures from this construction in the received signals can generally be automatically detected and corrected. If the number of errors is not greater than the maximum correctable threshold of the code, all errors are corrected.

2.4 *error correcting system*—in information transmission, a system employing either forward error correction or automatic repeat-request techniques or both, such that most transmission errors are automatically removed from the data prior to delivery to the user.

2.5 *forward error correction (FEC)*—a system of error control for information transmission wherein the receiving station has the capability to detect and correct any character or message that contains fewer than a predetermined number of symbols in error.

2.6 *interoperability*—the condition achieved among communications stations or personnel when information can be exchanged directly and satisfactorily between them or their users or both. It is desirable that the exchanges are error free, rapid, and automatic.

2.7 *phonetics*—a system of symbols and procedures that is used to control errors in communications, validate selected parts of messages, and enhance the interoperability and performance of communications personnel and systems.

2.8 *phonetic alphabet*—a selected set of phonetic symbols that has a one-to-one correspondence to the set of individual letters in a language. Also, any of various systems of code words for identifying letters in voice communications.

2.9 *phonetic punctuation*—a selected set of phonetic symbols that has a one-to-one correspondence to the set of individual punctuation in a language.

2.10 *phonetic numerals*—a selected set of phonetic symbols that has a one-to-one correspondence to the set of individual numerals in a language.

2.11 *phonetic symbol*—a unique word or combination of letters that is used as a substitute for, or an addition to, a specific letter, numeral, or punctuation in a language. It has the characteristics of an error correcting code.

3. Summary of Practice

3.1 *Interoperability and Performance*—A set of easily recognized and used symbols and procedures are established. They are used to control the errors that may be encountered in messages, to validate selected parts of messages, and to enhance the interoperability and performance of communications personnel and systems. This phonetic system is intended to be directly interoperable with the majority of standard phonetic systems presently employed, both internationally and within the United States.

3.2 *Error Control*— Error control is accomplished by detection of the errors and either prompt correction (based on the available information) or a request for another copy (if the information is inadequate for error correction).

4. Significance and Use

4.1 *Communications Errors and Delays*—Communications systems, including their procedures and channels, are subject to errors due to noise, interference, weak signals, mistakes, and other causes. They are also subject to delays due to the necessity to detect and correct these errors. There may also be errors and delays due to the lack of trained and experienced operators.

4.2 *Error Control*— Phonetics enables the control of errors through error detection, and usually prompt correction, for words and characters in speech and printed text. It employs an error correcting system of symbols and procedures that are standardized and easily recognized under adverse or high error communications conditions.

4.3 *Symbol Characteristics*—The phonetic alphabet is an error detecting and correcting code composed of phonetic symbols that are carefully selected to have distinctive sounds or appearances (or other unique characteristics) that improve detection under adverse conditions (such as severe noise or high errors) and enhance differentiation from each other.

4.3.1 Phonetics are inherently language-dependent. For English text letters, there are 26 phonetic alphabet symbols, that correspond to the 26 letters (from A to Z) that may be used to compose the words in a message. Additional symbols are used for numerals and punctuations.

4.3.2 Phonetic symbols (including an alphabet, numerals, and punctuation) must have unique characteristics as mentioned above, and they should not be restricted to only one communications media.

4.4 *Procedures for Error Detection and Correction:*

4.4.1 Phonetic communications procedures are used to minimize or eliminate information errors and to facilitate the correct transmission of messages using trained operators.

4.4.2 The phonetic procedures are carefully structured to enable symbol differentiation and error detection based on simple examination of the received data. Using forward error correction (FEC), in most cases the symbols can be identified, and the errors can be corrected promptly with no additional information.

4.4.3 FEC is based on the error detection system, which is usually the more robust of the two. Essentially, in certain poor conditions, it is possible to detect errors even though they may not be correctable (at the moment).

4.5 *Procedures for Retransmission*—In most cases, prompt error detection and correction is achievable through FEC. If this is not possible or acceptable, manual or automatic repeat-request (ARQ) is employed. The process of error detection can be used to initiate the ARQ and therefore the retransmission of the information, such as an additional copy (or copies). The copy(ies) may be received error free or with correctable errors (especially when compared with previous copy(ies)).

4.6 *Use of Non-standard Systems*—This phonetic system is not intended to prohibit the use of non-standard brevity or error control systems that are used only internally within any single organization. It also does not preclude the use of additional methods for clarity.

4.7 *Use of Standard Systems*—This phonetic system is intended to be directly interoperable with the majority of standard phonetic systems presently employed, both internationally and within the United States, as noted in references (1-9). These standard systems actually exhibit many variations among themselves. Some provide no procedures, and none include all of the symbols presented herein. Of all these known documents, this practice is the only one that presents an explanation of the phonetic system in terms of modern communications technology. To achieve interoperability and performance through bona fide standardization, system administrators should consider this comprehensive practice for superseding (or revising) these other standard systems.

5. Procedure

5.1 *Phonetic Alphabet:*

5.1.1 *Phonetic Alphabet and Pronunciations*—Table 1 presents

TABLE 1 Phonetic Alphabet and Pronunciations

Letter	Symbol	Pronunciation[A]
A	ALFA	"AL-fah"
B	BRAVO	"BRAH-voh"
C	CHARLIE	"CHAR-lee"
D	DELTA	"DELL-tah"
E	ECHO	"ECK-oh"
F	FOXTROT	"FOKS-trot"
G	GOLF	"GOLF"
H	HOTEL	"hoh-TELL"
I	INDIA	"IN-dee-ah"
J	JULIET	"JEW-lee-ETT"
K	KILO	"KEY-loh"
L	LIMA	"LEE-mah"
M	MIKE	"MIKE"
N	NOVEMBER	"no-VEM-ber"
O	OSCAR	"OSS-cah"
P	PAPA	"pah-PAH"
Q	QUEBEC	"keh-BECK"
R	ROMEO	"ROW-me-oh"
S	SIERRA	"see-AIR-rah"
T	TANGO	"TANG-go"
U	UNIFORM	"YOU-nee-form"
V	VICTOR	"VIK-tah"
W	WHISKEY	"WISS-key"
X	XRAY	"ECKS-ray"
Y	YANKEE	"YANG-key"
Z	ZULU	"ZOO-loo"

[A] The pronunciations are in quotes and CAPITAL letters to indicate the verbal emphasis.