



**CIVIL AVIATION RULES AND STANDARDS**

**FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA**

**PART 17 - AERONAUTICAL TELECOMMUNICATIONS**

**February 2019**

## PREAMBLE

WHEREAS, it is desirable to consolidate and modernize the aviation rules and standards to bring them to international standards,

WHEREAS, it is important to set the rules and standards as to how the regulatory, administrative, technical and supervisory activities of the Authority shall be performed in the one hand and setting the duties, obligations and standards that shall be respected by service providers and aviation personnel,

WHEREAS, it is necessary, to provide detailed rules and standards for the administration, certification, investigation and enforcement of aviation laws.

NOW THEREBY, The Authority under its power given by Article 92/2 of the Civil Aviation Proclamation No. 616/2008 issued the following directives.

### 1. SHORT TITLE

These rules and standards may be cited as "Civil Aviation Rules and Standards of the Federal Democratic Republic of Ethiopia"

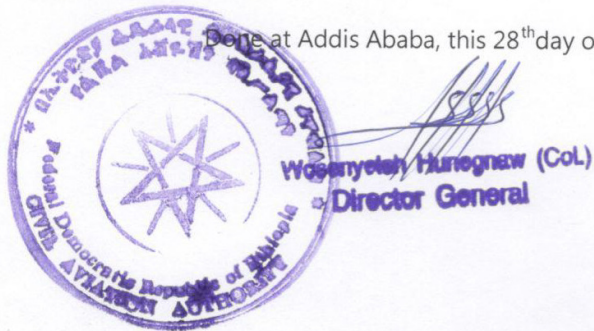
### 2. DUTY TO COOPERATE

Any person shall have the duty to cooperate in the implementation of these rules and standards.

### 3. EFFECTIVE DATE

This amended Rules and Standards shall come into force as of 28<sup>th</sup> day of February 2019.

Done at Addis Ababa, this 28<sup>th</sup> day of February, 2019



**AMENDMENTS**

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## 1. DEFINITIONS

When the following terms are used in this ECARAS, they have the meaning prescribed in this chapter:

A list of additional specialized communication terms and their definitions is contained in Attachment A.

All references to "Radio Regulations" are to the Radio Regulations published by the International Telecommunication Union (ITU). Radio Regulations are amended from time to time by the decisions embodied in the Final Acts of World Radio communication Conferences held normally every two to three years. Further information on the ITU processes as they relate to aeronautical radio system frequency use is contained in the Handbook on Radio Frequency Spectrum Requirements for Civil Aviation including statement of approved ICAO policies (Doc 9718).

### 1.1 SERVICES

**Aeronautical broadcasting service.** A broadcasting service intended for the transmission of information relating to air navigation.

**Aeronautical fixed service (AFS).** A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

**Aeronautical fixed telecommunication network (AFTN).** A worldwide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics.

**Aeronautical mobile service (RR S1.32).** A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

**Aeronautical mobile (R)\* service (RR S1.33).** An aeronautical mobile service reserved for communications relating to safety and regularity of flight, primarily along national or international civil air routes.

**Aeronautical mobile-satellite service (RR S1.35).** A mobile-satellite service in which mobile earth stations are located on board aircraft; survival craft stations and emergency position-indicating radio beacon stations may also participate in this service.

**Aeronautical mobile-satellite (R)\* service (RR S1.36).** An aeronautical mobile-satellite service reserved for communications relating to safety and regularity of flights, primarily along national or international civil air routes.

**Aeronautical radio navigation service (RR S1.46).** A radio navigation service intended for the benefit and for the safe operation of aircraft.



The following Radio Regulations are quoted for purposes of reference and/or clarity in understanding of the above definition of the aeronautical radio navigation service: RR S1.10 Radio navigation: Radio determination used for the purpose of navigation, including obstruction warning. RR S1.9 Radio determination: The determination of the position, velocity and/or other characteristics of an object, or the obtaining of information relating to these parameters, by means of the propagation properties of radio waves.

**Aeronautical telecommunication service.** A telecommunication service provided for any aeronautical purpose.

**International telecommunication service.** A telecommunication service between offices or stations of different States, or between mobile stations which are not in the same State, or are subject to different States.

## 1.2 STATIONS

**Aerodrome control radio station.** A station providing radio communication between an aerodrome control tower and aircraft **Aeronautical fixed station.** A station in the aeronautical fixed service.

**Aeronautical station (RR S1.81).** A land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board ship or on a platform at sea.

**Aeronautical telecommunication station.** A station in the aeronautical telecommunication service.

**AFTN communication centre.** An AFTN station whose primary function is the relay or retransmission of AFTN traffic from (or to) a number of other AFTN stations connected to it.

**AFTN destination station.** An AFTN station to which messages and/or digital data are addressed for processing for delivery to the addressee.

**AFTN origin station.** An AFTN station where messages and/or digital data are accepted for transmission over the AFTN.

**AFTN station.** A station forming part of the aeronautical fixed telecommunication network (AFTN) and operating as such under the authority or control of a State.

**Air-ground control radio station.** An aeronautical telecommunication station having primary responsibility for handling communications pertaining to the operation and control of aircraft in a given area.

**Aircraft station (RR S1.83).** A mobile station in the aeronautical mobile service, other than a survival craft station, located on board an aircraft.

**Communication centre.** An aeronautical fixed station which relays or retransmits telecommunication traffic from (or to) a number of other aeronautical fixed stations directly connected to it.

**Mobile surface station.** A station in the aeronautical telecommunication service, other than an aircraft station, intended to be used while in motion or during halts at unspecified points. **Network station.** An aeronautical station forming part of a radiotelephony network.

**Radio direction finding (RR S1.12).** Radio determination using the reception of radio waves for the purpose of determining the direction of a station or object.

**Radio direction-finding station (RR S1.91).** A radio determination station using radio direction finding.

**Regular station.** A station selected from those forming an en-route air-ground radiotelephony network to communicate with or to intercept communications from aircraft in normal conditions.

**Tributary station.** An aeronautical fixed station that may receive or transmit messages and/or digital data but which does not relay except for the purpose of serving similar stations connected through it to a communication centre.

### 1.3 COMMUNICATION METHODS

**Air-ground communication.** Two-way communication between aircraft and stations or locations on the surface of the earth.

**Air-to-ground communication.** One-way communication from aircraft to stations or locations on the surface of the earth.

**Blind transmission.** A transmission from one station to another station in circumstances where two-way communication cannot be established but where it is believed that the called station is able to receive the transmission.

**Broadcast.** A transmission of information relating to air navigation that is not addressed to a specific station or stations.

**Duplex.** A method in which telecommunication between two stations can take place in both directions simultaneously.

**Ground-to-air communication.** One-way communication from stations or locations on the surface of the earth to aircraft.

**Inter pilot air-to-air communication.** Two-way communication on the designated air-to-air channel to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

**Non-network communications.** Radiotelephony communications conducted by a station of the aeronautical mobile service, other than those conducted as part of a radiotelephony network.

**Radiotelephony network.** A group of radiotelephony aeronautical stations which operate on and guard frequencies from the same family and which support each other in a defined manner to ensure maximum dependability of air-ground communications and dissemination of air-ground traffic.

**Readback.** A procedure whereby the receiving station repeats a received message or an appropriate part thereof back to the transmitting station so as to obtain confirmation of correct reception.

**Simplex.** A method in which telecommunication between two stations takes place in one direction at a time.

**Telecommunication (RR S1.3).** Any transmission, emission, or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, radio, optical or other electromagnetic systems.

#### 1.4 DIRECTION FINDING

**Homing.** The procedure of using the direction-finding equipment of one radio station with the emission of another radio station, where at least one of the stations is mobile, and whereby the mobile station proceeds continuously towards the other station.

**Radio bearing.** The angle between the apparent direction of a definite source of emission of electro-magnetic waves and a reference direction, as determined at a radio direction-finding station. A *true* radio bearing is one for which the reference direction is that of true North. A *magnetic* radio bearing is one for which the reference direction is that of magnetic North.

#### 1.5 TELE TYPE WRITER SYSTEMS

**Automatic relay installation.** A teletypewriter installation where automatic equipment is used to transfer messages from incoming to outgoing circuits.

**Fully automatic relay installation.** A teletypewriter installation where interpretation of the relaying responsibility in respect of an incoming message and the resultant setting-up of the connections required to effect the appropriate

retransmissions is carried out automatically, as well as all other normal operations of relay, thus obviating the need for operator intervention, except for supervisory purposes.

**Message field.** An assigned area of a message containing specified elements of data.

**Semi-automatic relay installation.** A teletypewriter installation where interpretation of the relaying responsibility in respect of an incoming message and the resultant setting-up of the connections required to effect the appropriate retransmissions require the intervention of an operator but where all other normal operations of relay are carried out automatically.

**Teletypewriter tape.** A tape on which signals are recorded in the 5-unit Start-Stop code by completely severed perforations (Chad Type) or by partially severed perforations (Chad less Type) for transmission over teletypewriter circuits.

**“Torn-tape” relay installation.** A teletypewriter installation where messages are received and relayed in teletypewriter tape form and where all operations of relay are performed as the result of operator intervention.

## 1.6 AGENCIES

**Aeronautical telecommunication agency.** An agency responsible for operating a station or stations in the aeronautical telecommunication service.

**Aircraft operating agency.** A person, organization or enterprise engaged in, or offering to engage in, an aircraft operation.

## 1.7 FREQUENCIES

**Primary frequency.** The radiotelephony frequency assigned to an aircraft as a first choice for air-ground communication in a radiotelephony network.

**Secondary frequency.** The radiotelephony frequency assigned to an aircraft as a second choice for air-ground communication in a radiotelephony network.

## 1.8 DATA LINK COMMUNICATIONS

**Controller-pilot data link communications (CPDLC).** A means of communication between controller and pilot, using data link for ATC communications.

**CPDLC message.** Information exchanged between an airborne system and its ground counterpart. A CPDLC message consists of a single message element or a combination of message elements conveyed in a single transmission by the-----.

**CPDLC message set.** A list of standard message elements and free text message elements.

**Current data authority.** The designated ground system through which a CPDLC dialogue between a pilot and a controller currently responsible for the flight is permitted to take place.

**Free text message element.** Part of a message that does not conform to any standard message element in the PANS-ATM (Doc 4444).

**Logon address.** A specified code used for data link logon to an ATS unit.

**Next data authority.** The ground system so designated by the current data authority through which an onward transfer of communications and control can take place.

**Standard message element.** Part of a message defined in the PANS-ATM (Doc 4444) in terms of display format, intended use and attributes.

## 1.9 MISCELLANEOUS

**Aeronautical fixed circuit.** A circuit forming part of the aeronautical fixed service (AFS).

**Aeronautical fixed telecommunication network circuit.** A circuit forming part of the aeronautical fixed telecommunication network (AFTN).

**Aeronautical telecommunication log.** A record of the activities of an aeronautical telecommunication station.

**Air-report.** A report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.

**Altitude.** The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

**ATS direct speech circuit.** An aeronautical fixed service (AFS) telephone circuit, for direct exchange of information between air traffic services (ATS) units.

**Automatic telecommunication log.** A record of the activities of an aeronautical telecommunication station recorded by electrical or mechanical means.

**Flight level.** A surface of constant atmospheric pressure which is related to a specific pressure datum, 1 013.2 hectopascals (hPa), and is separated from other such surfaces by specific pressure intervals.

**Frequency channel.** A continuous portion of the frequency spectrum appropriate for a transmission utilizing a specified class of emission.

**Height.** The vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

**Human performance.** Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

**Location indicator.** A four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the location of an aeronautical fixed station.

**Meteorological operational channel.** A channel of the aeronautical fixed service (AFS), for the exchange of aeronautical meteorological information.

**Meteorological operational telecommunication network.** An integrated system of meteorological operational channels, as part of the aeronautical fixed service (AFS), for the exchange of aeronautical meteorological information between the aeronautical fixed stations within the network.

**NOTAM.** A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

**Operational control communications.** Communications required for the exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of a flight.

**Route segment.** A route or portion of route usually flown without an intermediate stop.

**Routing Directory.** A list in a communication centre indicating for each addressee the outgoing circuit to be used.

**SNOWTAM.** A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

## **2. ADMINISTRATIVE PROVISIONS RELATING TO THE INTERNATIONAL AERONAUTICAL TELECOMMUNICATION SERVICE**

### **2.1 DIVISION OF SERVICE**

The international aeronautical telecommunication service shall be divided into four parts:

- 1) Aeronautical fixed service;
- 2) Aeronautical mobile service;
- 3) Aeronautical radio navigation service;
- 4) Aeronautical broadcasting service.

### **2.2 TELECOMMUNICATION ACCESS**

All aeronautical telecommunication stations, including end systems and intermediate systems of the aeronautical telecommunication network (ATN), shall be protected from unauthorized direct or remote access.

### **2.3 HOURS OF SERVICE**

2.3.1 The Ethiopian Civil Aviation Authority shall give notification of the normal hours of service of stations and Offices of the international aeronautical telecommunication service under its control to the aeronautical telecommunication agencies designated to receive this information by other Administrations concerned.

2.3.2 Whenever necessary and practicable, the ECAA shall give notification of any change in the normal hours of service, before such a change is effected, to the aeronautical telecommunication agencies designated to receive this information by other Administrations concerned. Such changes shall also, whenever necessary, be promulgated in NOTAM.

2.3.3 If a station of the international aeronautical telecommunication service, or an aircraft operating agency, requests a change in the hours of service of another station, such change shall be requested as soon as possible after the need for change is known. The station or aircraft operating agency requesting the change shall be informed of the result of its request as soon as possible.

### **2.4 SUPERVISION**

2.4.1 The Ethiopian Civil Aviation Authority shall designate the authority responsible for ensuring that the international aeronautical telecommunication service is conducted in accordance with the Procedures in this Annex.

- 2.4.2 Occasional infringements of the Procedures contained herein, when not serious, should be dealt with by direct communication between the parties immediately interested either by correspondence or by personal contact.
- 2.4.3 When a station commits serious or repeated infringements, representations relating to them shall be made to the authority designated in 17.2.4.1 of the State to which the station belongs by the authority which detects them.
- 2.4.4 The authorities designated in 17.2.4.1 should exchange information regarding the performance of systems of communication, radio navigation, operation and maintenance, unusual transmission phenomena, etc.

## **2.5 SUPERFLUOUS TRANSMISSIONS**

The Ethiopian Civil Aviation Authority shall ensure that there is no willful transmission of unnecessary or anonymous signals, messages or data by any station within that State.

## **2.6 INTERFERENCE**

Before authorizing tests and experiments in any station, each Administration, in order to avoid harmful interference, shall prescribe the taking of all possible precautions, such as the choice of frequency and of time, and the reduction or, if possible, the suppression of radiation. Any harmful interference resulting from tests and experiments shall be eliminated as soon as possible.

## **3. GENERAL PROCEDURES FOR THE INTERNATIONAL AERONAUTICAL TELECOMMUNICATION SERVICE**

### **3.1 GENERAL**

The procedures outlined in this chapter are general in character and shall be applied where appropriate to the other chapters contained in this Volume.

### **3.2 EXTENSIONS OF SERVICE AND CLOSING DOWN OF STATIONS**

- 3.2.1 The Ethiopian Civil Aviation Authority shall extend their normal hours of service as required to provide for traffic necessary for flight operation.
- 3.2.2 Before closing down, a station shall notify its intention to all other stations with which it is in direct communication, confirm that an extension of service is not required and advise the time of re-opening if other than its normal hours of service.



3.2.3 When it is working regularly in a network on a common circuit, a station shall notify its intention of closing down either to the control station, if any, or to all stations in the network. It shall continue watch for two minutes and may then close down if it has received no call during this period.

3.2.4 Stations with other than continuous hours of operation, engaged in, or expected to become engaged in distress, urgency, unlawful interference, or interception traffic, shall extend their normal hours of service to provide the required support to those communications.

### **3.3 ACCEPTANCE, TRANSMISSION AND DELIVERY OF MESSAGES**

3.3.1 Only those messages coming within the categories specified in 17.4.4.1.1 shall be accepted for transmission by the aeronautical telecommunication service.

- a) The responsibility for determining the acceptability of a message shall rest with the station where the message is filed for transmission.
- b) Once a message is deemed acceptable, it shall be transmitted, relayed and (or) delivered in accordance with the priority classification and without discrimination or undue delay.
- c) The authority in control of any station through which a message is relayed, should make representations at a later date to the authority in control of the accepting station regarding any message which is considered unacceptable.

3.3.2 Only messages for stations forming part of the aeronautical telecommunication service shall be accepted for transmission, except where special arrangements have been made with the telecommunication authority concerned.

- a) Acceptance as a single message of a message intended for two or more addresses, whether at the same station or at different stations, shall be permitted subject, however, to the provisions prescribed in

3.3.3 Messages handled for aircraft operating agencies shall be accepted only when handed in to the telecommunication station in the form prescribed herein and by an authorized representative of that agency, or when received from that agency over an authorized circuit.

3.3.4 For each station of the aeronautical telecommunication service from which messages are delivered to one or more aircraft operating agencies, a single office for each aircraft operating agency shall be designated by agreement between the aeronautical telecommunication agency and the aircraft operating agency concerned.

3.3.5 Stations of the international aeronautical telecommunication service shall be responsible for delivery of messages to addressee(s) located within the boundaries of the aerodrome(s) served by that station and

beyond those boundaries only to such addressee(s) as may be agreed by special arrangements with the Administrations concerned.

3.3.6 Messages shall be delivered in the form of a written record, or other permanent means as prescribed by authorities.

i) In cases where telephone or loudspeaker systems are used without recording facilities for the delivery of messages, a written copy should be provided, as confirmation of delivery, as soon as possible.

3.3.7 Messages originated in the aeronautical mobile service by an aircraft in flight and which require transmission over the aeronautical fixed telecommunication network to effect delivery, shall be reprocessed by the aeronautical Telecommunication station into the message format prescribed in 4.4.2 prior to transmission on the AFTN.

i) Messages originated in the aeronautical mobile service by an aircraft in flight and which require transmission over the aeronautical fixed service, other than on AFTN circuits, shall also be reprocessed by the aeronautical telecommunication station into the format prescribed in 17.4.4.2 except where, subject to the provisions of 17.3.3.5, prior and other arrangements have been made between the aeronautical telecommunication agency and the aircraft operating agency concerned for predetermined distribution of messages from aircraft.

ii) Messages (including air-reports) without specific address containing meteorological information received from an aircraft in flight shall be forwarded without delay to the meteorological office associated with the point of reception.

iii) Messages (including air-reports) without specific address containing air traffic services information from aircraft in flight shall be forwarded without delay to the air traffic services unit associated with the communication station receiving the message.

iv) When recording the text of air-reports in AIREP form, the data conventions approved by ICAO for this purpose shall be used wherever possible.

v) When air-reports in AIREP form are to be retransmitted by telegraphy (including tele type writing), the text transmitted shall be as recorded in compliance with 17.3.3.7.4.

### 3.4 TIME SYSTEM

3.4.1 Coordinated Universal Time (UTC) shall be used by all stations in the aeronautical telecommunication service. Midnight shall be designated as 2400 for the end of the day and 0000 for the beginning of the day.

3.4.2 A date-time group shall consist of six figures, the first two figures representing the date of the month and the last four figures the hours and minutes in UTC.

### 3.5 RECORD OF COMMUNICATIONS

#### 3.5.1 General

- i) A telecommunication log, written or automatic, shall be maintained in each station of the aeronautical telecommunication service except that an aircraft station, when using radiotelephony in direct communication with an aeronautical station, need not maintain a telecommunication log.
  - a) Aeronautical stations should record messages at the time of their receipt, except that, if during an emergency the continued manual recording would result in delays in communication, the recording of messages may be temporarily interrupted and completed at the earliest opportunity.
  - b) When a record is maintained in an aircraft station, either in a radiotelephone log or elsewhere, concerning distress communications, harmful interference, or interruption to communications, such a record should be associated with information concerning the time and the position, and altitude of the aircraft.
- ii) In written logs, entries shall be made only by operators on duty except that other persons having knowledge of facts pertinent to the entries may certify in the log the accuracy of operators' entries.
- iii) All entries shall be complete, clear, correct and intelligible. Superfluous marks or notations shall not be made in the log.
- iv) In written logs, any necessary correction in the log shall be made only by the person making the initial entry. The correction shall be accomplished by drawing or typing a single line through the incorrect entry, initialing same, recording the time and date of correction. The correct entry shall be made on the next line after the last entry.
- v) Telecommunication logs, written or automatic, shall be retained for a period of at least thirty days. When logs are pertinent to inquiries or investigations they shall be retained for longer periods until it is evident that they will be no longer required.
- vi) The following information shall be entered in written logs:
  - a) the name of the agency operating the station;
  - b) the identification of the station;
  - c) the date;

- d) the time of opening and closing the station;
- e) the signature of each operator, with the time the operator assumes and relinquishes a watch;
- f) the frequencies being guarded and type of watch (continuous or scheduled) being maintained on each frequency;
- g) except at intermediate mechanical relay stations where the provisions of this paragraph need not be complied with, a record of each communication, test transmission, or attempted communication showing text of communication, time communication completed, station(s) communicated with, and frequency used. The text of the communication may be omitted from the log when copies of the messages handled are available and form part of the log;
- h) all distress communications and action thereon;
- i) a brief description of communication conditions and difficulties, including harmful interference. Such entries should include, whenever practicable, the time at which interference was experienced, the character, radio frequency and identification of the interfering signal;
- j) a brief description of interruption to communications due to equipment failure or other troubles, giving the duration of the interruption and action taken;
- k) such additional information as may be considered by the operator to be of value as a part of the record of the station's operations.

### **3.6 ESTABLISHMENT OF RADIOCOMMUNICATION**

- 3.6.1 All stations shall answer calls directed to them by other stations in the aeronautical telecommunication service and shall exchange communications on request.
- 3.6.2 All stations shall radiate the minimum power necessary to ensure a satisfactory service.

### **3.7 USE OF ABBREVIATIONS AND CODES**

- 3.7.1 Abbreviations and codes shall be used in the international aeronautical telecommunication service whenever they are appropriate and their use will shorten or otherwise facilitate communication.
  - a) Where abbreviations and codes other than those approved by ICAO are contained in the text of messages, the originator shall, if so required by the aeronautical telecommunication station accepting the message for transmission, make available to that station a decode for the abbreviations and codes used.

### 3.8 CANCELLATION OF MESSAGES

- 3.8.1 Messages shall be cancelled by a telecommunication station only when cancellation is authorized by the message originator.

## 4. AERONAUTICAL FIXED SERVICE (AFS)

### 4.1 GENERAL

- 4.1.1 The aeronautical fixed service shall comprise the following systems and applications that are used for ground (i.e. point-to-point and/or point-to-multipoint) communications in the international aeronautical telecommunication service:

- a) ATS direct speech circuits and networks;
- b) meteorological operational circuits, networks and broadcast systems;
- c) the aeronautical fixed telecommunication network (AFTN);
- d) the common ICAO data interchange network (CIDIN);
- e) the air traffic services (ATS) message handling services; and
- f) the inter-centre communications (ICC).

### 4.1.2 MATERIAL PERMITTED IN AFS MESSAGES

The provisions contained in 4.1.2 do not apply to ATS voice communications.

- i) The following characters are allowed in text messages:

*Letters:* ABCDEFGHIJKLMNOPQRSTUVWXYZ *Figures:* 1 2 3 4 5 6 7 8 9 0 *other signs:* -

Characters other than those listed above shall not be used in messages unless absolutely necessary for understanding of the text. When used, they shall be spelled out in full.

- ii) For the exchange of messages over the teletypewriter circuits, the following signals of the International Telegraph Alphabet No. 2 (ITA-2) shall be permitted:

signals nos. 1 to 3 — in letter and in figure case;

signal no. 4 — in letter case only;

signal no. 5 — in letter and in figure case;

- signals nos. 6 to 8 — in letter case only;
- signal no. 9 — in letter and in figure case;
- signal no. 10 — in letter case only; and
- signals nos. 11 to 31 — in letter and figure case.
- iii) For the exchange of messages over the teletypewriter circuits, the following characters of International Alphabet No. 5 (IA-5) shall be permitted: characters 0/1 to 0/3, 0/7 — in the priority alarm (see 174.4.15.2.2.5), 0/10, 0/11 — in the ending sequence.
- a) The exchange of messages using the full IA-5 shall be subject to agreement between the Administrations concerned.
- iv) Roman numerals shall not be employed. If the originator of a message wishes the addressee to be informed that roman figures are intended, the arabic figure or figures shall be written and preceded by the word ROMAN.
- v) Messages using the ITA-2 code shall not contain:
- a) Any uninterrupted sequence of signals nos. 26, 3, 26 and 3 (letter case and figure case) in this order, other than the one in the heading as prescribed in 4.4.2.1 a; and
- b) Any uninterrupted sequence of four times signal no. 14 (letter case and figure case) other than the one in the ending as prescribed in 4.4.6.1.
- vi) Messages using IA-5 shall not contain:
- 1) character 0/1 (SOH) other than the one in the heading as prescribed in 4.4.15.1.1 a);
- 2) character 0/2 (STX) other than the one in the origin line as prescribed in 174.4.15.2.2.7;
- 3) character 0/3 (ETX) other than the one in the ending as prescribed in 174.4.15.3.12.1;
- 4) any uninterrupted sequence of characters 5/10, 4/3, 5/10, 4/3 in this order (ZCZC);
- 5) any uninterrupted sequence of characters 2/11, 3/10, 2/11, 3/10 in this order (+:+:);
- 6) any uninterrupted sequence of four times character 4/14 (NNNN); and
- 7) any uninterrupted sequence of four times character 2/12 (,,,,).
- vii) The text of messages shall be drafted in plain language or in abbreviations and codes, as prescribed in 17.3.7. The originator shall avoid the use of plain language when reduction in the length of the text by appropriate abbreviations and codes is practicable. Words and phrases which are not essential, such as expressions of politeness, shall not be used.

viii) If the originator of a message wishes alignment functions to be transmitted at specific places in the text part of such message (see 4.4.5.3 and 4.4.15.3.6), the sequence shall be written on each of those places.

#### **4.2 ATS DIRECT SPEECH CIRCUITS**

Provisions relating to ATS direct speech communications are contained in Chapter 6 of Annex 11.

#### **4.3 METEOROLOGICAL OPERATIONAL CHANNELS AND METEOROLOGICAL OPERATIONAL TELECOMMUNICATION NETWORKS**

Meteorological operational channel procedures and meteorological operational communication network procedures shall be compatible with aeronautical fixed telecommunication network (AFTN) procedures.

#### **4.4 AERONAUTICAL FIXED TELECOMMUNICATION NETWORK (AFTN)**

##### **4.4.1 General**

i) Categories of messages. Subject to the provisions of 3.3, the following categories of message shall be handled by the aeronautical fixed telecommunication network:

- 1)distress messages;
- 2)urgency messages;
- 3)flight safety messages;
- 4)meteorological messages;
- 5)flight regularity messages;
- 6)aeronautical information services (AIS) messages;
- 7)aeronautical administrative messages;
- 8)service messages.

a) Distress messages (priority indicator SS). This message category shall comprise those messages sent by mobile stations reporting that they are threatened by grave and imminent danger and all other messages relative to the immediate assistance required by the mobile station in distress.

b) Urgency messages (priority indicator DD). This category shall comprise messages concerning the safety of a ship, aircraft or other vehicles, or of some person on board or within sight.

- c) Flight safety messages (priority indicator FF) shall comprise:
- 1) movement and control messages as defined in the PANS-ATM (Doc 4444), Chapter 11;
  - 2) messages originated by an aircraft operating agency of immediate concern to aircraft in flight or preparing to depart;
  - 3) meteorological messages restricted to SIGMET information, special air-reports, AIRMET messages, volcanic ash
  - 4) and tropical cyclone advisory information and amended forecasts.
- d) Meteorological messages (priority indicator GG) shall comprise:
- 1) messages concerning forecasts, e.g. terminal aerodrome forecasts (TAFs), area and route forecasts;
  - 2) messages concerning observations and reports, e.g. METAR, SPECI.
- e) Flight regularity messages (priority indicator GG) shall comprise:
- 1) aircraft load messages required for weight and balance computation;
  - 2) messages concerning changes in aircraft operating schedules;
  - 3) messages concerning aircraft servicing;
  - 4) messages concerning changes in collective requirements for passengers, crew and cargo covered by deviation from normal operating schedules;
  - 5) messages concerning non-routine landings;
  - 6) messages concerning pre-flight arrangements for air navigation services and operational servicing for non-scheduled aircraft operations, e.g. over flight clearance requests;
  - 7) messages originated by aircraft operating agencies reporting an aircraft arrival or departure;
  - 8) messages concerning parts and materials urgently required for the operation of aircraft.
- f) Aeronautical information services (AIS) messages (priority indicator GG) shall comprise:
- 1) messages concerning NOTAMs;
  - 2) messages concerning SNOWTAMs.
- g) Aeronautical administrative messages (priority indicator KK) shall comprise:
- 1) messages regarding the operation or maintenance of facilities provided for the safety or regularity of aircraft
  - 2) operations;



- 3) messages concerning the functioning of aeronautical telecommunication services;
  - 4) messages exchanged between civil aviation authorities relating to aeronautical services.
- h) Messages requesting information shall take the same priority indicator as the category of message being requested except where a higher priority is warranted for flight safety.
- i) Service messages (priority indicator as appropriate). This category shall comprise messages originated by aeronautical fixed stations to obtain information or verification concerning other messages which appear to have been transmitted incorrectly by the aeronautical fixed service, confirming channel-sequence numbers, etc.
- 1) *Service messages shall be prepared in the format prescribed in 4.4.2 or 4.4.15. In applying the provisions of 4.4.3.1.2 or 4.4.15.2.1.3 to service messages addressed to an aeronautical fixed station identified only by a location indicator, this indicator shall be immediately followed by the ICAO three-letter designator YFY, followed by an appropriate 8th letter.*
  - 2) *Service messages shall be assigned the appropriate priority indicator. 17.4.4.1.1.9.2.1 When service messages refer to messages previously transmitted, the priority indicator assigned should be that used for the message(s) to which they refer.*
  - 3) Service messages correcting errors in transmission shall be addressed to all the addressees that will have received the incorrect transmission.
  - 4) A reply to a service message shall be addressed to the station which originated the initial service message.
  - 5) The text of all service messages should be as concise as possible.
  - 6) A service message, other than one acknowledging receipt of SS messages, shall be further identified by the use of the abbreviation SVC as the first item in the text.
  - 7) *When a service message refers to a message previously handled, reference to the previous message shall be made by use of the appropriate transmission identification (see 17. 4.4.2.1.1 b) and 17. 4.4.15.1.1 b)) or the filing time and originator indicator groups (see 17. 4.4.4 and 17. 4.4.15.2.2) identifying the reference message.*

#### 4.1.2 ORDER OF PRIORITY

- a) The order of priority for the transmission of messages in the aeronautical fixed telecommunication network shall be as follows:

Transmission Priority indicator

- 1) 1 SS
- 2) 2 DD FF
- 3) 3 GG KK

- b) Messages having the same priority indicator should be transmitted in the order in which they are received for transmission.

#### 4.1.3 ROUTING OF MESSAGES

- a) All communications shall be routed by the most expeditious route available to effect delivery to the addressee.

- b) Predetermined diversion routing arrangements shall be made, when necessary, to expedite the movement of communication traffic. Each communication centre shall have the appropriate diversion routing lists, agreed to by the Administration(s) operating the communication centers affected and shall use them when necessary.

i) Diversion routing should be initiated:

- 1) in a fully automatic communication centre:
  - a) immediately after detection of the circuit outage, when the traffic is to be diverted via a fully automatic communication centre;
  - b) within a 10-minute period after detection of the circuit outage, when the traffic is to be diverted via a non-fully automatic communication centre;
- 2) in a non-fully automatic communication centre within a 10-minute period after detection of the circuit outage. Service message notification of the diversion requirement should be provided where no bilateral or multilateral prearranged agreements exist.

- c) As soon as it is apparent that it will be impossible to dispose of traffic over the aeronautical fixed service within a reasonable period, and when the traffic is held at the station where it was filed, the originator shall be consulted regarding further action to be taken, unless:
- 1) otherwise agreed between the station concerned and the originator; or
  - 2) arrangements exist whereby delayed traffic is automatically diverted to commercial telecommunication services without reference to the originator.

#### 4.1.4 SUPERVISION OF MESSAGE TRAFFIC

- a) Continuity of message traffic. The receiving station shall check the transmission identification of incoming transmissions to ensure the correct sequence of channel-sequence numbers of all messages received over that channel.

i) When the receiving station detects that one or more channel-sequence numbers are missing, it shall send a complete service message (see 17.4.4.1.1.9) to the previous station rejecting receipt of any message that may have been transmitted with such missing number(s). The text of this service message shall comprise the signal QTA, the procedure signal MIS followed by one or more missing transmission identification (see 17.4.4.2.1.1.3 and 17.4.4.15.1.1.4) and the end-of-text signal (see 17.4.4.5.6 and 17.4.4.15.3.12).

1) When the provisions of 17.4.4.1.4.1.1 are applied, the station notified of the missing message(s) condition by the service message shall reassume its responsibility for transmission of the message (or messages) that it had previously transmitted with the transmission identification concerned, and shall retransmit that message (or those messages) with a new (correct in sequence) transmission identification. The receiving station shall synchronize such that the next expected channel sequence number is the last received channel-sequence number plus one.

- ii) When the receiving station detects that a message has a channel sequence number less than that expected, it should advise the previous station using a service message with a text comprising:

- 1) the abbreviation SVC;
- 2) the procedure signal LR followed by the transmission identification of the received message;
- 3) the procedure signal EXP followed by the transmission identification expected;
- 4) the end-of-text signal

1) When the provisions of 17.4.4.1.4.1.2 are applied, the station receiving the out-of sequence message should synchronize such that the next expected channel-sequence number is the last

received channel sequence number plus one. The previous station should check its outgoing channel-sequence numbers and, if necessary, correct the sequence.

b) MISROUTED MESSAGES

i )When the receiving station detects that a message has been misrouted to it, it shall either:

- 1) send a service message (see 17. 4.4.1.1.9) to the previous station rejecting receipt of the misrouted message; or
- 2) itself assume responsibility for transmission of the message to all addressee indicators.

ii ) When the provisions of 17.4.4.1.4.2.1, 1) are applied, the text of the service message shall comprise the abbreviation SVC, the signal QTA, the procedure signal MSR followed by the transmission identification (see 17.4.4.2.1.1.3 and 17.4.4.15.1.1.4) of the misrouted message and the end-of-text signal (see 17.4.4.5.6 and 17.4.4.15.3.12).

iii) When, as a result of the provisions of 17. 4.4.1.4.2.2, a sending station is notified of the misrouted message condition by service message, it shall reassume its responsibility for the message and shall retransmit as necessary on the correct outgoing channel or channels.

c) When a circuit becomes interrupted and alternative facilities exist, the last channel-sequence numbers sent and received shall be exchanged between the stations concerned. Such exchanges shall take the form of complete service messages (see 17. 4.4.1.1.9) with the text comprising the abbreviation SVC, the procedure signals LR and LS followed by the transmission identifications of the relevant messages and the end-of-text signal (see 17.4.4.5.6 and 17. 4.4.15.3.12).

#### 4.1.5 FAILURE OF COMMUNICATIONS

a) Should communication on any fixed service circuit fail, the station concerned shall attempt to re-establish contact as soon as possible.

b) If contact cannot be re-established within a reasonable period on the normal fixed service circuit, an appropriate alternative circuit should be used. If possible, attempts should be made to establish Communication on any authorized fixed service circuit available.

i) If these attempts fail, use of any available air-ground frequency shall be permitted only as an exceptional and temporary measure when no interference to aircraft in flight is ensured.

ii) Where a radio circuit fails due to signal fade-out or adverse propagation conditions, a receiving watch shall be maintained on the regular fixed service frequency normally in use. In order to re-establish contact on this frequency as soon as possible there shall be transmitted:

- a) the procedure signal DE;
- b) identification of the transmitting station transmitted three times;
- c) the alignment function ;
- d) the letters RY repeated without separation for three lines of page copy;
- e) the alignment function ;
- f) end-of-message signal (NNNN).

The foregoing sequence shall be repeated as required.

iii) A station experiencing a circuit or equipment failure shall promptly notify other stations with which it is in direct communication if the failure will affect traffic routing by those stations. Restoration to normal shall also be notified to the same stations.

- c) Where diverted traffic will not be accepted automatically or where a predetermined diversion routing has not been agreed, a temporary diversion routing shall be established by the exchange of service messages. The text of such service messages shall comprise:
  - 1) the abbreviation SVC;
  - 2) the procedure signal QSP;
  - 3) if required, the procedure signal RQ, NO or CNL to request, refuse or cancel a diversion;
  - 4) identification of the routing areas, States, territories, locations, or stations for which the diversion applies;
  - 5) the end-of-text signal.

#### **4.1.6 LONG-TERM RETENTION OF AFTN TRAFFIC RECORDS**

- a) Copies of all messages, in their entirety, transmitted by an AFTN origin station shall be retained for a period of at least 30 days.
- b) AFTN destination stations shall retain, for a period of at least 30 days, a record containing the information necessary to identify all messages received and the action taken thereon.
- c) AFTN communication centers should retain, for a period of at least 30 days, a record containing the information necessary to identify all messages relayed or retransmitted and the action taken thereon.

#### **4.1.7 SHORT-TERM RETENTION OF AFTN TRAFFIC RECORDS**

- a) Except as provided in 4.4.1.7.b, AFTN communication centres shall retain, for a period of at least one hour, a copy of all messages, in their entirety, retransmitted or relayed by that communication centre.
- b) In cases where acknowledgement is made between AFTN communication centres, a relay centre shall be considered as having no further responsibility for retransmission or repetition of a message for which it has received positive acknowledgement, and it may be deleted from its records.

#### 4.1.8 TEST PROCEDURES ON AFTN CHANNELS

- a) Test messages transmitted on AFTN channels for the purpose of testing and repairing lines should consist of the following:
- 1) the start-of-message signal;
  - 2) the procedure signal QJH;
  - 3) the originator indicator;
  - 4) three page-copy lines of the sequence of characters RY in ITA-2 or U(5/5) \*(2/10) in IA-5; and
  - 5) the end-of-message signal.

All messages, other than those prescribed in 4.4.1.8 and 17.4.4.9.3, shall comprise the components specified in 17.4.4.2.1 to 17.4.4.6.1 inclusive.

The heading shall comprise:

- a) start-of-message signal, the characters ZCZC
- b) transmission identification comprising
  1. circuit identification
  2. channel-sequence number
- c) additional service information (if necessary) comprising:

#### 4.5 COMMON ICAO DATA INTERCHANGE NETWORK (CIDIN)

a) The common ICAO data interchange network (CIDIN), which comprises application entities and communication services for ground-ground message exchange, makes use of protocols based on the International Telegraph and Telephone Consultative Committee (CCITT) X.25 Recommendation to provide code and byte-independent communication facilities.

b) The principal goals of the CIDIN are to improve the AFTN and to support large message transmission and more demanding applications, such as operational meteorological information (OPMET), between two or multiple ground systems.

c) Details of CIDIN communication procedures, as implemented in Europe, are shown in the EUR CIDIN

Manual.

#### **4.6 ATS MESSAGE HANDLING SERVICES (ATSMHS)**

The ATS message service of the ATS (air traffic services) message handling service (ATSMHS) application shall be used to exchange ATS messages between users over the aeronautical telecommunication network (ATN) internet.

#### **4.7 INTER-CENTRE COMMUNICATIONS (ICC)**

i) The inter-centre communications (ICC) applications set shall be used to exchange ATS messages between air traffic service users over the ATN internet.

The ICC applications set enables the exchange of information in support of the following operational services:

- a) flight notification;
- b) flight coordination;
- c) transfer of control and communications;
- d) flight planning;
- e) airspace management; and
- f) air traffic flow management.

ii) The first of the applications developed for the ICC set is the ATS interfacility data communication (AIDC).

iii) The AIDC application exchanges information between ATS units (ATSUs) for support of critical air traffic control (ATC) functions, such as notification of flights approaching a flight information region (FIR) boundary, coordination of boundary conditions and transfer of control and communications authority.

### **5 AERONAUTICAL MOBILE SERVICE VOICE COMMUNICATIONS**

#### **5.1 GENERAL**

5.1.1 In all communications the highest standard of discipline shall be observed at all times.

- a) ICAO standardized phraseology shall be used in all situations for which it has been specified. Only when standardized phraseology cannot serve an intended transmission, plain language shall be used.

- b) The transmission of messages, other than those specified in 5.1.8, on aeronautical mobile frequencies when the aeronautical fixed services are able to serve the intended purpose, shall be avoided.
- c) In all communications, the consequences of human performance which could affect the accurate reception and comprehension of messages should be taken into consideration.
- 5.1.2 Where it is necessary for an aircraft station to send signals for testing or adjustment which are liable to interfere with the working of a neighboring aeronautical station, the consent of the station shall be obtained before such signals are sent. Such transmissions shall be kept to a minimum.
- 5.1.3 When it is necessary for a station in the aeronautical mobile service to make test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall not continue for more than 10 seconds and shall be composed of spoken numerals (ONE, TWO, THREE, etc.) in radiotelephony, followed by the radio call sign of the station transmitting the test signals. Such transmissions shall be kept to a minimum.
- 5.1.4 Except as otherwise provided, the responsibility of establishing communication shall rest with the station having traffic to transmit
- 5.1.5 After a call has been made to the aeronautical station, a period of at least 10 seconds should elapse before a second call is made. This should eliminate unnecessary transmissions while the aeronautical station is getting ready to reply to the initial call.
- 5.1.6 When an aeronautical station is called simultaneously by several aircraft stations, the aeronautical station shall decide the order in which aircraft shall communicate.
- 5.1.7 In communications between aircraft stations, the duration of communication shall be controlled by the aircraft station which is receiving, subject to the intervention of an aeronautical station. If such communications take place on an ATS frequency, prior permission of the aeronautical station shall be obtained. Such requests for permission are not required for brief exchanges.
- 5.1.8 CATEGORIES OF MESSAGES

The categories of messages handled by the aeronautical mobile service and the order of priority in the establishment of communications and the transmission of messages shall be in accordance with the following table. Message category and order of priority signal Radiotelephony signal

- a) Distress calls, distress messages and distress traffic MAYDAY



- b) Urgency messages, including messages preceded by the medical transports signal PAN, PAN or PAN, PAN MEDICAL
  - c) Communications relating to direction finding —
  - d) Flight safety messages —
  - e) Meteorological messages —
  - f) Flight regularity messages —
- i) Distress messages and distress traffic shall be handled in accordance with the provisions of 5.3.
- ii) Urgency messages and urgency traffic, including messages preceded by the medical transports signal, shall be handled in accordance with the provisions of 5.3. The term “medical transports” is defined in the 1949 Geneva Conventions and Additional Protocols (see also RR S33 Section III) and refers to “any means of transportation by land, water, or air, whether military or civilian, permanent or temporary, assigned exclusively to medical transportation and under the control of a competent authority of a Party to the conflict”.
- iii) Communications relating to direction finding shall be handled in accordance with Chapter 6.
- iv) Flight safety messages shall comprise the following:
- 1) movement and control messages [see the PANS-ATM (Doc 4444)];
  - 2) messages originated by an aircraft operating agency or by an aircraft, of immediate concern to an aircraft in flight;
  - 3) meteorological advice of immediate concern to an aircraft in flight or about to depart (individually communicated or for broadcast);
  - 4) other messages concerning aircraft in flight or about to depart.
- v) Meteorological messages shall comprise meteorological information to or from aircraft, other than those in 5.1.8. iv), 3).
- vi) Flight regularity messages shall comprise the following:
- 1) messages regarding the operation or maintenance of facilities essential for the safety or regularity of aircraft operation;
  - 2) messages concerning the servicing of aircraft;

- 3) instructions to aircraft operating agency representatives concerning changes in requirements for passengers and crew caused by unavoidable deviations from normal operating schedules. Individual requirements of passengers or crew shall not be admissible in this type of message;
  - 4) messages concerning non-routine landings to be made by the aircraft;
  - 5) messages concerning aircraft parts and materials urgently required;
  - 6) messages concerning changes in aircraft operating schedules.
- a) Air traffic services units using direct pilot-controller communication channels shall only be required to handle flight regularity messages provided this can be achieved without interference with their primary role and no other channels are available for the handling of such messages.
- vii) Messages having the same priority should, in general, be transmitted in the order in which they are received for transmission.
- viii) Inter pilot air-to-air communication shall comprise messages related to any matter affecting safety and regularity of flight. The category and priority of these messages shall be determined on the basis of their content in accordance with 17.5.1.8.

#### **5.1.9 CANCELLATION OF MESSAGES**

- a) Incomplete transmissions. If a message has not been completely transmitted when instructions to cancel are received, the station transmitting the message shall instruct the receiving station to disregard the incomplete transmission. This shall be effected in radiotelephony by use of an appropriate phrase.
- b) COMPLETE TRANSMISSIONS. When a completed message transmission is being held pending correction and the receiving station is to be informed to take no forwarding action, or when delivery or onward relay cannot be accomplished, transmission should be cancelled. This should be effected in radiotelephony by the use of an appropriate phrase.
- c) The station cancelling a transmission shall be responsible for any further action required.

### **5.2 RADIOTELEPHONY PROCEDURES**

#### **5.2.1 General**

- i) When a controller or pilot communicates via voice, the response should be via voice. Except as provided by 8.2.121, when a controller or pilot communicates via CPDLC, the response should be via CPDLC.

- ii) LANGUAGE TO BE USED
  - a) The air-ground radiotelephony communications shall be conducted in the language normally used by the station on the ground or in the English language. 1.
  - b) The English language shall be available, on request from any aircraft station, at all stations on the ground serving designated airports and routes used by international air services.
  - c) The languages available at a given station on the ground shall form part of the Aeronautical Information Publications and other published aeronautical information concerning such facilities.
- iii) Word spelling in radiotelephony. When proper names, service abbreviations and words of which the spelling is doubtful are spelled out in radiotelephony, the alphabet in Figure 5-1 shall be used.

**v) TRANSMISSION OF NUMBERS IN RADIOTELEPHONY**

**1) TRANSMISSION OF NUMBERS**

- a) All numbers, except as prescribed in 5.2.1.v) b) shall be transmitted by pronouncing each digit separately.
- b) All numbers used in the transmission of altitude, cloud height, visibility and runway visual range (RVR) information, which contain whole hundreds and whole thousands, shall be transmitted by pronouncing each digit in the number of hundreds or thousands followed by the word HUNDRED or THOUSAND as appropriate. Combinations of thousands and whole hundreds shall be transmitted by pronouncing each digit in the number of thousands followed by the word THOUSAND followed by the number of hundreds followed by the word HUNDRED.( TO BE CHANGED )
- c) Numbers containing a decimal point shall be transmitted as prescribed in 5.2.1.v) a) with the decimal point in appropriate sequence being indicated by the word DECIMAL.
- d) When transmitting time, only the minutes of the hour should normally be required. Each digit should be pronounced separately. However, the hour should be included when any possibility of confusion is likely to result.

**2) VERIFICATION OF NUMBERS**

- a) When it is desired to verify the accurate reception of numbers, the person transmitting the message shall request the person receiving the message to read back the numbers.

**3) PRONUNCIATION OF NUMBERS**

- a) When the language used for communication is English, numbers shall be transmitted using the following pronunciation: Numeral or numeral element Pronunciation.

**4) TRANSMITTING TECHNIQUE**

- a) Each written message should be read prior to commencement of transmission in order to eliminate unnecessary delays in communications.
- b) Transmissions shall be conducted concisely in a normal conversational tone.
- c) Speech transmitting technique should be such that the highest possible intelligibility is incorporated in each transmission. Fulfillment of this aim requires that air crew and ground personnel should:
  - 1) enunciate each word clearly and distinctly;
  - 2) maintain an even rate of speech not exceeding 100 words per minute. When a message is transmitted to an aircraft and its contents need to be recorded the speaking rate should be at a slower rate to allow for the writing process. A slight pause preceding and following numerals makes them easier to understand;
  - 3) maintain the speaking volume at a constant level;
  - 4) be familiar with the microphone operating techniques particularly in relation to the maintenance of a constant distance from the microphone if a modulator with a constant level is not used;
  - 5) suspend speech temporarily if it becomes necessary to turn the head away from the microphone.
- d) Speech transmitting technique should be adapted to the prevailing communication conditions.
- e) Messages accepted for transmission should be transmitted in plain language or ICAO phraseologies without altering the sense of the message in any way. Approved ICAO abbreviations contained in the text of the message to be transmitted to aircraft should normally be converted into the unabbreviated words or phrases which these abbreviations represent in the language used, except for those which, owing to frequent and common practice, are generally understood by aeronautical personnel.
- f) To expedite communication, the use of phonetic spelling should be dispensed with, if there is no risk of this affecting correct reception and intelligibility of the message

- g) The transmission of long messages should be interrupted momentarily from time to time to permit the transmitting operator to confirm that the frequency in use is clear and, if necessary, to permit the receiving operator to request repetition of parts not received.
- h) The following words and phrases shall be used in radiotelephony communications as appropriate and shall have the meaning ascribed hereunder: Phrase Meaning ACKNOWLEDGE "Let me know that you have received and understood this message." AFFIRM "Yes." APPROVED "Permission for proposed action granted."

BREAK "I hereby indicate the separation between portions of the message." (To be used where there is no clear distinction between the text and other portions of the message.) BREAK BREAK "I hereby indicate the separation between messages transmitted to different aircraft in a very busy environment." CANCEL "Annul the previously transmitted clearance." CHECK "Examine a system or procedure." (Not to be used in any other context. No answer is normally expected.) Phrase Meaning.

#### 5.2.1.6 COMPOSITION OF MESSAGES

- a) Messages handled entirely by the aeronautical mobile service shall comprise the following parts in the order stated:
- i) call indicating the addressee and the originator (see 5.2.1.7.3);
  - ii) text (see 17.5.2.1.6.2.1.1).
- b) Messages requiring handling by the AFTN for part of their routing and similarly messages which are not handled in accordance with predetermined distribution arrangements (see 17.3.3.7.1) shall be composed as follows:
- i) When originated in an aircraft:
    - 1) call (see 17.5.2.1.7.3);
    - 2) the word FOR;
    - 3) the name of the organization addressed;
    - 4) the name of the station of destination;
    - 5) the text.

#### 5.2.1.7 CALLING

##### a) **RADIOTELEPHONY CALL SIGNS FOR AERONAUTICAL STATION**

- i) Aeronautical stations in the aeronautical mobile service shall be identified by:

- a) the name of the location; and
  - b) the unit or service available.
- ii) The unit or service shall be identified in accordance with the table below except that the name of the location or the unit/service may be omitted provided satisfactory communication has been established.

**b)     RADIOTELEPHONY CALL SIGNS FOR AIRCRAFT**

i) Full call signs

1) An aircraft radiotelephony call sign shall be one of the following types:

2) Abbreviated call signs

ii) The aircraft radiotelephony call signs shown in **17.5.2.1.7.2.1.1**, with the exception of Type c), may be abbreviated in the circumstances prescribed in **17.5.2.1.7.3.3.1**. Abbreviated call signs shall be in the following form: Type a) — the first character of the registration and at least the last two characters of the call sign; Type b) — the telephony designator of the aircraft operating agency, followed by at least the last two characters of the call sign; Type c) — no abbreviated form.

**5.2.1.8     TEST PROCEDURES**

i) The form of test transmissions should be as follows:

- a) the identification of the station being called;
- b) the aircraft identification;
- c) the words "RADIO CHECK";
- d) the frequency being used.

ii) The reply to a test transmission should be as follows:

- a) the identification of the aircraft;
- b) the identification of the aeronautical station replying;
- c) information regarding the readability of the aircraft transmission.

iii) The test transmission and reply thereto should be recorded at the aeronautical station.

iv) When the tests are made, the following readability scale should be used:

Readability Scale

- 1) 1 Unreadable
- 2) 2 Readable now and then
- 3) 3 Readable but with difficulty
- 4) 4 Readable
- 5) 5 Perfectly readable

#### 5.2.1.9 EXCHANGE OF COMMUNICATIONS

- a) Communications shall be concise and unambiguous, using standard phraseology whenever available.
  - i) Abbreviated procedures should only be used after initial contact has been established and where no confusion is likely to arise.
- b) Acknowledgement of receipt. The receiving operator shall make certain that the message has been received correctly before acknowledging receipt.
  - i) When transmitted by an aircraft station, the acknowledgement of receipt of a message shall comprise the call sign of that aircraft.
  - ii) An aircraft station should acknowledge receipt of important air traffic control messages or parts thereof by reading them back and terminating the read back by its radio call sign. Air traffic control clearances, instructions and information requiring read back are specified in the PANS-ATM (Doc 4444)
- c) When acknowledgement of receipt is transmitted by an aeronautical station:
  - 1) to an aircraft station: it shall comprise the call sign of the aircraft, followed if considered necessary by the call sign of the aeronautical station;
  - 2) to another aeronautical station: it shall comprise the call sign of the aeronautical station that is acknowledging receipt.
  - i) An aeronautical station should acknowledge position reports and other flight progress reports by reading back the report and terminating the read back by its call sign, except that the read back procedure may be suspended temporarily whenever it will alleviate congestion on the communication channel.

- d) It is permissible for verification for the receiving station to read back the message as an additional acknowledgement of receipt. In such instances, the station to which the information is read back should acknowledge the correctness of read back by transmitting its call sign.
  - e) If both position report and other information — such as weather reports — are received in the same message, the information should be acknowledged with the words such as “WEATHER RECEIVED” after the position report has been read back, except when intercept of the information is required by other network stations. Other messages should be acknowledged, the aeronautical station transmitting its call sign only.
- iii) End of conversation. A radiotelephone conversation shall be terminated by the receiving station using its own call sign.

#### iv) CORRECTIONS AND REPETITIONS

- 1) When an error has been made in transmission, the word “CORRECTION” shall be spoken, the last correct group or phrase repeated, and then the correct version transmitted.
- 2) If a correction can best be made by repeating the entire message, the operator shall use the phrase “CORRECTION, I SAY AGAIN” before transmitting the message a second time.
- 3) When an operator transmitting a message considers that reception is likely to be difficult, he should transmit the important elements of the message twice.
- 4) If the receiving operator is in doubt as to the correctness of the message received, he shall request repetition either in full or in part.
- 5) If repetition of an entire message is required, the words “SAY AGAIN” shall be spoken. If repetition of a portion of a message is required, the operator shall state: “SAY AGAIN ALL BEFORE...(first word satisfactorily received)”; or “SAY AGAIN...(word before missing portion) TO...(word after missing portion)”; or “SAY AGAIN ALL AFTER...(last word satisfactorily received)”.
- .6) Specific items should be requested, as appropriate, such as “SAY AGAIN ALTIMETER”, “SAY AGAIN WIND”.
- 7) If, in checking the correctness of a read back, an operator notices incorrect items, he shall transmit the words “NEGATIVE I SAY AGAIN” at the conclusion of the read back followed by the correct version of the items concerned.



- v) *“OPERATIONS NORMAL” REPORTS.* When “operations normal” reports are transmitted by aircraft, they should consist of the prescribed call followed by the words “OPERATIONS NORMAL”.

## 5.2.2 ESTABLISHMENT AND ASSURANCE OF COMMUNICATIONS

### 5.2.2.1 COMMUNICATIONS WATCH/HOURS OF SERVICE

- a) During flight, aircraft stations shall maintain watch as required by the appropriate Authority and shall not cease watch, except for reasons of safety, without informing the aeronautical station(s) concerned.
- 1) Aircraft on long over-water flights, or on flights over designated areas over which the carriage of an emergency locator transmitter (ELT) is required, shall continuously guard the VHF emergency frequency 121.5 MHz, except for those periods when aircraft are carrying out communications on other VHF channels or when airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels.
  - 2) Aircraft shall continuously guard the VHF emergency frequency 121.5 MHz in areas or over routes where the possibility of interception of aircraft or other hazardous situations exist, and a requirement has been established by the appropriate Authority.
  - 3) Aircraft on flights other than those specified in 17.5.2.2.1.1.1 and 17.5.2.2.1.1.2 should guard the emergency frequency 121.5 MHz to the extent possible.
  - 4) The user of the air-to-air VHF communications channel shall ensure that adequate watch is maintained on designated ATS frequencies, the frequency of the aeronautical emergency channel, and any other mandatory watch frequencies.
- b) Aeronautical stations shall maintain watch as required by the appropriate Authority.
- c) Aeronautical stations shall maintain a continuous listening watch on VHF emergency channel 121.5 MHz during the hours of service of the units at which it is installed.
- d) When it is necessary for an aircraft station or aeronautical station to suspend operation for any reason, it shall, if possible, so inform other stations concerned, giving the time at which it is expected that operation will be resumed. When operation is resumed, other stations concerned shall be so informed.

- a) When it is necessary to suspend operation beyond the time specified in the original notice, a revised time of resumption of operation shall, if possible, be transmitted at or near the time first specified.
  
- e) When two or more ATS frequencies are being used by a controller, consideration should be given to providing facilities to allow ATS and aircraft transmissions on any of the frequencies to be simultaneously retransmitted on the other frequencies in use thus permitting aircraft stations within range to hear all transmissions to and from the controller.

#### 5.2.2.2 PRINCIPLES OF NETWORK OPERATION (HF COMMUNICATIONS)

- a) The aeronautical stations of a radiotelephony network should assist each other in accordance with the following network principles, in order to provide the air-ground communication service required of the network by aircraft flying on the air routes for which the network is responsible.
  
- b) When the network comprises a large number of stations, network communications for flights on any individual route segment should be provided by selected stations, termed “regular stations” for that segment.
  
- c) In areas or on routes where radio conditions, length of flights or distance between aeronautical stations require additional measures to ensure continuity of air-ground communication throughout the route segment, the regular stations should share between them a responsibility of primary guard whereby each station will provide the primary guard for that portion of the flight during which the messages from the aircraft can be handled most effectively by that station.
  
- d) During its tenure of primary guard, each regular station should, among other things:
  - a) be responsible for designating suitable primary and secondary frequencies for its communications with the aircraft;
  - b) receive all position reports and handle other messages from and to the aircraft essential to the safe conduct of the flight;
  - c) be responsible for the action required in case of failure of communications (see 17.5.2.2.7.2).
  
- e) The transfer of primary guard from one station to the next will normally take place at the time of the traversing of flight information region or control area boundaries, this guard being provided at any time, as far as possible, by the station serving the flight information centre or area control centre in whose area the aircraft is flying. However, where communication conditions so demand, a station may be required to retain primary guard beyond such geographical boundaries or release its guard before the

aircraft reaches the boundary, if appreciable improvement in air ground communication can be effected thereby.

### 5.2.2.3 FREQUENCIES TO BE USED

- a) Aircraft stations shall operate on the appropriate radio frequencies.
  - 1) The air-ground control radio station shall designate the frequency (ies) to be used under normal conditions by aircraft stations operating under its control.
  - 2) In network operation, the initial designation of primary and secondary frequencies should be made by the network station with which the aircraft makes pre-flight check or its initial contact after take-off. This station should also ensure that other network stations are advised, as required, of the frequency (ies) designated.
- b) An aeronautical station, when designating frequencies in accordance with 17.5.2.2.3.1.1 or 17.5.2.2.3.1.2 should take into account the appropriate propagation data and distance over which communications are required.
- c) If a frequency designated by an aeronautical station proves to be unsuitable, the aircraft station should suggest an alternative frequency.
- d) When, notwithstanding the provisions of 5.1.1, air-ground frequencies are used for the exchange between network stations of messages essential for coordination and cooperation between the stations, such communication should, so far as possible, be effected over network frequencies not being used at that time for the bulk of the air-ground traffic. In all cases, the communication with aircraft stations should take priority over the inter-ground station communications.

### 5.2.2.4 ESTABLISHMENT OF COMMUNICATIONS

- a) Aircraft stations shall, if possible, communicate directly with the air-ground control radio station appropriate to the area in which the aircraft are flying. If unable to do so, aircraft stations shall use any relay means available and appropriate to transmit messages to the air-ground control radio station.
- b) When normal communications from an aeronautical station to an aircraft station cannot be established, the aeronautical station shall use any relay means available and appropriate to transmit messages to the aircraft station. If these efforts fail, the originator shall be advised in accordance with procedures prescribed by the appropriate Authority.

c) When, in network operation, communication between an aircraft station and a regular station has not been established after calls on the primary and secondary frequencies, aid should be rendered by one of the other regular stations for that flight, either by calling the attention of the station first called or, in the case of a call made by an aircraft station, by answering the call and taking the traffic.

1) Other stations of the network should render assistance by taking similar action only if attempts to establish communications by the regular stations have proved unsuccessful.

d) The provisions of 17.5.2.2.4.3 and 17.5.2.2.4.3.1 should also be applied:

1) on request of the air traffic services unit concerned;

2) when an expected communication from an aircraft has not been received within a time period such that the occurrence of a communication failure is suspected.

#### 5.2.2.5 TRANSFER OF HF COMMUNICATIONS

a) An aircraft station should be advised by the appropriate aeronautical station to transfer from one radio frequency or network to another. In the absence of such advice, the aircraft station should notify the appropriate aeronautical station before such transfer takes place.

b) In the case of transfer from one network to another, the transfer should preferably take place while the aircraft is in communication with a station operating in both networks to ensure continuity of communications. If, however, the change of network must take place concurrently with the transfer of communication to another network station, the transfer should be coordinated by the two network stations prior to advising or authorizing the frequency change. The aircraft should also be advised of the primary and secondary frequencies to be used after the transfer.

c) An aircraft station which has transferred communications watch from one radio frequency to another shall, when so required by the appropriate ATS Authority, inform the aeronautical station concerned that communications watch has been established on the new frequency.

d) When entering a network after take-off, an aircraft station should transmit its take-off time or time over the last check-point, to the appropriate regular station.

e) When entering a new network, an aircraft station should transmit the time over the last checkpoint, or of its last reported position, to the appropriate regular station.

f) Before leaving the network, an aircraft station should in all cases advise the appropriate regular station of its intention to do so by transmitting one of the following phrases, as appropriate:

1) When transferring to a pilot-to-controller channel:

Aircraft: CHANGING TO . . . (air traffic services unit concerned)

2) After landing:

Aircraft: LANDED . . . (location) . . . (time)

### 5.2.2.6 TRANSFER OF VHF COMMUNICATIONS

- a) An aircraft shall be advised by the appropriate aeronautical station to transfer from one radio frequency to another in accordance with agreed procedures. In the absence of such advice, the aircraft station shall notify the appropriate aeronautical station before such a transfer takes place.
- b) When establishing initial contact on, or when leaving, a VHF frequency, an aircraft station shall transmit such information as may be prescribed by the appropriate Authority.

### 5.2.2.7 VOICE COMMUNICATIONS FAILURE

a) *AIR-GROUND*

- b) When an aircraft station fails to establish contact with the appropriate aeronautical station on the designated channel, it shall attempt to establish contact on the previous channel used and, if not successful, on another channel appropriate to the route. If these attempts fail, the aircraft station shall attempt to establish communication with the appropriate aeronautical station, other aeronautical stations or other aircraft using all available means and advise the aeronautical station that contact on the assigned channel could not be established. In addition, an aircraft operating within a network shall monitor the appropriate VHF channel for calls from nearby aircraft.
- ii) If the attempts specified under 17.5.2.2.7.1.1 fail, the aircraft station shall transmit its message twice on the designated channel(s), preceded by the phrase "TRANSMITTING BLIND" and, if necessary, include the addressee(s) for which the message is intended.
  - 1) In network operation, a message which is transmitted blind should be transmitted twice on both primary and secondary channels. Before changing channel, the aircraft station should announce the channel to which it is changing.

iii) **RECEIVER FAILURE**

- 1) When an aircraft station is unable to establish communication due to receiver failure, it shall transmit reports at the scheduled times, or positions, on the channel in use, preceded by the phrase "TRANSMITTING BLIND DUE TO RECEIVER FAILURE". The aircraft station shall transmit

the intended message, following this by a complete repetition. During this procedure, the aircraft shall also advise the time of its next intended transmission.

- 2) An aircraft which is provided with air traffic control or advisory service shall, in addition to complying with 17.5.2.2.7.1.3.1, transmit information regarding the intention of the pilot-in-command with respect to the continuation of the flight of the aircraft.
- 3) When an aircraft is unable to establish communication due to airborne equipment failure it shall, when so equipped, select the appropriate SSR code to indicate radio failure. *General rules which are applicable in the event of communications failure are contained in Annex 2 to the Convention.*

**b) GROUND-TO-AIR**

- 1) When an aeronautical station has been unable to establish contact with an aircraft station after calls on the frequencies on which the aircraft is believed to be listening, it shall:
  - a) request other aeronautical stations to render assistance by calling the aircraft and relaying traffic, if necessary;
  - b) request aircraft on the route to attempt to establish communication with the aircraft and relay traffic, if necessary.
- 2) The provisions of 5 17.2.2.7.2.1 shall also be applied:
  - a) on request of the air traffic services unit concerned;
  - b) when an expected communication from an aircraft has not been received within a time period such that the occurrence of a communication failure is suspected.
- 3) If the attempts specified in 17.5.2.2.7.2.1 fail, the aeronautical station should transmit messages addressed to the aircraft, other than messages containing air traffic control clearances, by blind transmission on the frequency(ies) on which the aircraft is believed to be listening.
- 4) Blind transmission of air traffic control clearances shall not be made to aircraft, except at the specific request of the originator.

- c) Notification of communications failure. The air-ground control radio station shall notify the appropriate air traffic services unit and the aircraft operating agency, as soon as possible, of any failure in air-ground communication.

### 5.2.3 HF MESSAGE HANDLING

#### 5.2.3.1 GENERAL

- a) When operating within a network, an aircraft station should, in principle, whenever communications conditions so permit, transmit its messages to the stations of the network from which they can be most readily delivered to their ultimate destinations. In particular, aircraft reports required by air traffic services should be transmitted to the network station serving the flight information centre or area control centre in whose area the aircraft is flying. Conversely, messages to aircraft in flight should, whenever possible, be transmitted directly to the aircraft by the network station serving the location of the originator.
- b) Messages passed from an aircraft to a network station should, whenever possible, be intercepted and acknowledged by other stations of the network, which serve locations where the information is also required.
  - 1) Acknowledgement of intercept should be made immediately after the acknowledgement of receipt by the station to which the message was passed.
  - 2) Acknowledgement of an intercept message should be made by transmitting the radio call sign of the station having intercepted the message, followed by the word ROGER, if desired, and the call sign of the station having transmitted the message.
  - 3) In the absence of acknowledgement of intercept within one minute, the station accepting the message from the aircraft should forward it, normally over the aeronautical fixed service, to the station(s) which have failed to acknowledge intercept.
    - i) If, in abnormal circumstances, forwarding is necessary using the air-ground channels, the provisions of 17.5.2.2.3.4 should be observed.
  - 4) When such forwarding is done over the aeronautical fixed telecommunication network, the messages should be addressed to the network station(s) concerned.
  - 5) The station(s) to which the messages have been forwarded should carry out local distribution of them in the same way as if they had been received directly from the aircraft over the air-ground channel.

- 6) The aeronautical station receiving an air-report or a message containing meteorological information transmitted by an aircraft in flight shall forward the message without delay:
- i) to the air traffic services unit and meteorological offices associated with the station;
  - ii) to the aircraft operating agency concerned or its representative when that agency has made a specific request to receive such messages.
- c) The provisions of **17.5.2.3.1.2** should also be applied, if practicable, in non-network operation.
- d) When a message addressed to an aircraft in flight is received by the aeronautical station included in the address, and when that station is not able to establish communication with the aircraft to which the message is addressed, the message should be forwarded to those aeronautical stations on the route which may be able to establish communication with the aircraft.
- 1) If the aeronautical station to which the message is addressed is unable to dispose of the message in accordance with **17.5.2.3.1.4**, the station of origin should be advised.
  - 2) The aeronautical station forwarding the message shall amend the address thereof, by substituting for its own location indicator the location indicator of the aeronautical station to which the message is being forwarded.

#### 5.2.3.2 TRANSMISSION OF ATS MESSAGES TO AIRCRAFT

- a) If it is not possible to deliver an ATS message to the aircraft within the time specified by ATS, the aeronautical station should notify the originator. Thereafter, it should take no further action with respect to this message unless specifically instructed by ATS.
- b) If delivery of an ATS message is uncertain because of inability to secure an acknowledgement, the aeronautical station should assume that the message has not been received by the aircraft and should advise the originator immediately that, although the message has been transmitted, it has not been acknowledged.
- c) The aeronautical station, having received the message from ATS, should not delegate to another station the responsibility for delivery of the message to the aircraft. However, in case of communication difficulties, other stations should assist, when requested, in relaying the message to the aircraft. In this case, the station having received the message from ATS should obtain without delay definite assurance that the aircraft has correctly acknowledged the message.



**5.2.3.3 RECORDING OF AIR-GROUND COMMUNICATIONS ON TELETYPEWRITER**

- i) When recording on teletypewriter, the following procedure should be used:
- a) each line should begin at the left margin;
  - b) a new line should be used for each transmission;
  - c) each communication should contain some or all of the following items in the order shown:
    - 1) call sign of the calling station;
    - 2) text of the message;
    - 3) call sign of the station called or the receiving station, followed by the appropriate abbreviation to indicate "Received", "Readback", or "No reply heard";
    - 4) call sign of station(s) acknowledging intercept followed by appropriate abbreviation to indicate "Received";
    - 5) designation of frequency used;
    - 6) time in UTC of the communication;
  - d) missing parts of the message text should be indicated by typing the three periods (space . space . space . space) or three letters M (space M space M space M space);
  - e) correction of typing errors should be made by keyboard manipulation (space E space E space E space), followed by the correct information. Errors detected after the completion of the entry should be corrected after the last entry, using the abbreviation COR, followed by the correct information.

**5.2.4 SELCAL procedures**

The procedures contained in 5.2.4 are applicable when SELCAL is used and replace certain of the procedures related to calling contained in 5.2.1.

**5.2.4.1 GENERAL**

- a) With the selective calling system known as SELCAL, the voice calling is replaced by the transmission of coded tones to the aircraft over the radiotelephony channels. A single selective call consists of a combination of four pre-selected audio tones whose transmission requires approximately 2 seconds. The tones are generated in the aeronautical station coder and are received by a decoder connected to the audio output of the airborne receiver. Receipt of the assigned tone code (SELCAL code) activates a cockpit call system in the form of light and/or chime signals.
- b) SELCAL should be utilized by suitably equipped stations for ground-to-air selective calling on the en-route HF and VHF radio channels.

- c) On aircraft equipped with SELCAL, the pilot is still able to keep a conventional listening watch if required.

#### **5.2.4.2 NOTIFICATION TO AERONAUTICAL STATIONS OF AIRCRAFT SELCAL CODES**

- a) It is the responsibility of the aircraft operating agency and the aircraft to ensure that all aeronautical stations, with which the aircraft would normally communicate during a particular flight, know the SELCAL code associated with its radiotelephony call sign.
- b) When practicable, the aircraft operating agency should disseminate to all aeronautical stations concerned, at regular intervals, a list of SELCAL codes assigned to its aircraft or flights.
- c) The aircraft should:
  - i) include the SELCAL code in the flight plan submitted to the appropriate air traffic services unit; and
  - ii) ensure that the HF aeronautical station has the correct SELCAL code information by establishing communications temporarily with the HF aeronautical station while still within VHF coverage.

Provisions regarding completion of the flight plan are set forth in the PANS-ATM (Doc 4444).

#### **5.2.4.3 PRE-FLIGHT CHECK**

- a) The aircraft station should contact the appropriate aeronautical station and request a pre-flight SELCAL check and, if necessary, give its SELCAL code.
- b) When primary and secondary frequencies are assigned, a SELCAL check should normally be made first on the secondary frequency and then on the primary frequency. The aircraft station would then be ready for continued communication on the primary frequency.
- c) Should the pre-flight check reveal that either the ground or airborne SELCAL installation is inoperative, the aircraft should maintain a continuous listening watch on its subsequent flight until SELCAL again becomes available.

#### **5.2.4.4 ESTABLISHMENT OF COMMUNICATIONS**

- a) When an aeronautical station initiates a call by SELCAL, the aircraft replies with its radio call sign, followed by the phrase "GO AHEAD".

**5.2.4.5 EN-ROUTE PROCEDURES**

- a) Aircraft stations should ensure that the appropriate aeronautical station(s) are aware that SELCAL watch is being established or maintained.
- b) When so prescribed on the basis of regional air navigation agreements, calls for scheduled reports from aircraft may be initiated by an aeronautical station by means of SELCAL.
- c) Once SELCAL watch has been established by a particular aircraft station, aeronautical stations should employ SELCAL whenever they require to call aircraft.
- d) In the event the SELCAL signal remains unanswered after two calls on the primary frequency and two calls on the secondary frequency, the aeronautical station should revert to voice calling.
- e) Stations in a network should keep each other immediately advised when malfunctioning occurs in a SELCAL installation on the ground or in the air. Likewise, the aircraft should ensure that the aeronautical stations concerned with its flight are immediately made aware of any malfunctioning of its SELCAL installation, and that voice calling is necessary.
- f) All stations should be advised when the SELCAL installation is again functioning normally.

**5.2.4.6 SELCAL CODE ASSIGNMENT TO AIRCRAFT**

- a) In principle, the SELCAL code in the aircraft should be associated with the radiotelephony call sign, i.e. where the flight number (service number) is employed in the radio call sign, the SELCAL code in the aircraft should be listed against the flight number. In all other cases, the SELCAL code in the aircraft should be listed against the aircraft registration. The use of aircraft radio call signs, consisting of the airline abbreviation followed by the flight service number, is increasing among aircraft operators throughout the world. The SELCAL equipment in aircraft should, therefore, be of a type which permits a particular code being associated with a particular flight number, i.e. equipment which is capable of adjustment in code combinations. At this stage, however, many aircraft still carry SELCAL equipment of the single code type, and it will not be possible for aircraft with such equipment to satisfy the principle set out above. This should not militate against use of the flight number type of radio call sign by an aircraft so equipped if it wishes to apply this type of call sign, but it is essential when a single code airborne equipment is used in conjunction with a flight number type radio call sign that the ground stations be advised in connection with *each flight of the SELCAL code available in the aircraft*.

**5.3 DISTRESS AND URGENCY RADIOTELEPHONY COMMUNICATION PROCEDURES**

**5.3.1 General**

The distress and urgency procedures contained in 17.5.3 relate to the use of radiotelephony. The provisions of Article S30 and Appendix S13 of the ITU Radio Regulations are generally applicable, except that S30.9 permits other procedures to be employed where special arrangements between governments exist, and are also applicable to radiotelephony communications between aircraft stations and stations in the maritime mobile service.

5.3.1.1 Distress and urgency traffic shall comprise all radiotelephony messages relative to the distress and urgency conditions respectively. Distress and urgency conditions are defined as:

- a) Distress: a condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.
- b) Urgency: a condition concerning the safety of an aircraft or other vehicle, or of some person on board or within sight, but which does not require immediate assistance.

5.3.1.2 The radiotelephony distress signal MAYDAY and the radiotelephony urgency signal PAN PAN shall be used at the commencement of the first distress and urgency communication respectively.

- a) At the commencement of any subsequent communication in distress and urgency traffic, it shall be permissible to use the radiotelephony distress and urgency signals.

5.3.1.3 The originator of messages addressed to an aircraft in distress or urgency condition shall restrict to the minimum the number and volume and content of such messages as required by the condition.

5.3.1.4 If no acknowledgement of the distress or urgency message is made by the station addressed by the aircraft, other stations shall render assistance, as prescribed in 17.5.3.2.2 and 17.5.3.3.2 respectively.

5.3.1.5 Distress and urgency traffic shall normally be maintained on the frequency on which such traffic was initiated until it is considered that better assistance can be provided by transferring that traffic to another frequency.

5.3.1.6 In cases of distress and urgency communications, in general, the transmissions by radiotelephony shall be made slowly and distinctly, each word being clearly pronounced to facilitate transcription

**5.3.2 RADIOTELEPHONY DISTRESS COMMUNICATIONS****5.3.2.1 ACTION BY THE AIRCRAFT IN DISTRESS**

i) In addition to being preceded by the radiotelephony distress signal MAYDAY (see 17.5.3.1.2), preferably spoken three times, the distress message to be sent by an aircraft in distress shall:

- a) be on the air-ground frequency in use at the time;

- b) consist of as many as possible of the following elements spoken distinctly and, if possible, in the following order:
  - 1) name of the station addressed (time and circumstances permitting);
  - 2) the identification of the aircraft;
  - 3) the nature of the distress condition;
  - 4) intention of the person in command;
  - 5) present position, level (i.e. flight level, altitude, etc., as appropriate) and heading.

#### **5.3.2.2 ACTION BY THE STATION ADDRESSED OR FIRST STATION ACKNOWLEDGING THE DISTRESS MESSAGE**

- i) The station addressed by aircraft in distress, or first station acknowledging the distress message, shall:
  - a) immediately acknowledge the distress message;
  - b) take control of the communications or specifically and clearly transfer that responsibility, advising the aircraft if a transfer is made;
  - c) take immediate action to ensure that all necessary information is made available, as soon as possible, to:
    - 1) the ATS unit concerned;
    - 2) the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements;
  - d) warn other stations, as appropriate, in order to prevent the transfer of traffic to the frequency of the distress communication.

#### **5.3.2.3 IMPOSITION OF SILENCE**

- a) The station in distress, or the station in control of distress traffic, shall be permitted to impose silence, either on all stations of the mobile service in the area or on any station which interferes with the distress traffic. It shall address these instructions “to all stations”, or to one station only, according to circumstances. In either case, it shall use:
  - STOP TRANSMITTING;
  - the radiotelephony distress signal MAYDAY.
- b) The use of the signals specified in 17.5.3.2.3.1 shall be reserved for the aircraft station in distress and for the station controlling the distress traffic.

**5.3.2.4 ACTION BY ALL OTHER STATIONS**

- i) The distress communications have absolute priority over all other communications, and a station aware of them shall not transmit on the frequency concerned, unless:
- the distress is cancelled or the distress traffic is terminated;
  - all distress traffic has been transferred to other frequencies;
  - the station controlling communications gives permission;
  - it has itself to render assistance.
- ii) Any station which has knowledge of distress traffic, and which cannot itself assist the station in distress, shall nevertheless continue listening to such traffic until it is evident that assistance is being provided.

**5.3.2.5 TERMINATION OF DISTRESS COMMUNICATIONS AND OF SILENCE**

- a) When an aircraft is no longer in distress, it shall transmit a message cancelling the distress condition.
- b) When the station which has controlled the distress communication traffic becomes aware that the distress condition is ended, it shall take immediate action to ensure that this information is made available, as soon as possible, to:
- the ATS unit concerned;
  - the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements.
- c) The distress communication and silence conditions shall be terminated by transmitting a message, including the words "DISTRESS TRAFFIC ENDED", on the frequency or frequencies being used for the distress traffic. This message shall be originated only by the station controlling the communications when, after the reception of the message prescribed in 5.3.2.5.(a) It is authorized to do so by the appropriate Authority.

**5.3.3 RADIOTELEPHONY URGENCY COMMUNICATIONS****5.3.3.1 ACTION BY THE AIRCRAFT REPORTING AN URGENCY CONDITION EXCEPT AS INDICATED IN 5.3.3.4**

- i) In addition to being preceded by the radiotelephony urgency signal PAN PAN (see 5.3.1.2), preferably spoken three times and each word of the group pronounced as the French word "panne", the urgency message to be sent by an aircraft reporting an urgency condition shall:
- be on the air-ground frequency in use at the time;

- b) consist of as many as required of the following elements spoken distinctly and, if possible, in the following order:
  - 1) the name of the station addressed;
  - 2) the identification of the aircraft;
  - 3) the nature of the urgency condition;
  - 4) the intention of the person in command;
  - 5) present position, level (i.e. flight level, altitude, etc., as appropriate) and heading;
  - 6) any other useful information.

#### **5.3.3.2 ACTION BY THE STATION ADDRESSED OR FIRST STATION ACKNOWLEDGING THE URGENCY MESSAGE**

- i) The station addressed by an aircraft reporting an urgency condition, or first station acknowledging the urgency message, shall:
  - a) acknowledge the urgency message;
  - b) take immediate action to ensure that all necessary information is made available, as soon as possible, to:
    - 1) the ATS unit concerned;
    - 2) the aircraft operating agency concerned, or its representative, in accordance with pre-established arrangements;
  - c) if necessary, exercise control of communications.

#### **5.3.3.3 ACTION BY ALL OTHER STATIONS**

- a) The urgency communications have priority over all other communications, except distress, and all stations shall take care not to interfere with the transmission of urgency traffic.

#### **5.3.3.4 ACTION BY AN AIRCRAFT USED FOR MEDICAL TRANSPORTS**

- i) The use of the signal described in 5.3.3.4(ii) shall indicate that the message which follows concerns a protected medical transport pursuant to the 1949 Geneva Conventions and Additional Protocols.
- ii) For the purpose of announcing and identifying aircraft used for medical transports, a transmission of the radiotelephony urgency signal PAN PAN, preferably spoken three times, and each word of the group pronounced as the French word "pane", shall be followed by the radiotelephony signal for medical transports MAY-DEE-CAL, pronounced as in the French "médical". The use of the signals described

above indicates that the message which follows concerns a protected medical transport. The message shall convey the following data:

- a) the call sign or other recognized means of identification of the medical transports;
- b) position of the medical transports;
- c) number and type of medical transports;
- d) intended route;
- e) estimated time en route and of departure and arrival, as appropriate; and
- f) any other information such as flight altitude, radio frequencies guarded, languages used, and secondary surveillance radar modes and codes.

#### **5.3.3.5 ACTION BY THE STATION ADDRESSED OR BY OTHER STATIONS RECEIVING A MEDICAL TRANSPORTS MESSAGE**

- a) The provisions of 5.3.3.2 and 5.3.3.3 shall apply as appropriate to stations receiving a medical transports message.

#### **5.4 COMMUNICATIONS RELATED TO ACTS OF UNLAWFUL INTERFERENCE**

The station addressed by an aircraft being subjected to an act of unlawful interference, or first station acknowledging a call from such aircraft, shall render all possible assistance, including notification of appropriate ATS units as well as any other station, agency or person in a position to facilitate the flight.

### **6. AERONAUTICAL RADIO NAVIGATION SERVICE**

#### **6.1 GENERAL**

6.1.1 The aeronautical radio navigation service shall comprise all types and systems of radio navigation aids in the international aeronautical service.

6.1.2 An aeronautical radio navigation aid which is not in continuous operation shall, if practicable, be put into operation on receipt of a request from an aircraft, any controlling authority on the ground, or an authorized representative of an aircraft operating agency.

- a) Requests from aircraft should be made to the aeronautical station concerned on the air ground frequency normally in use.

6.1.3 Arrangements shall be made for the local aeronautical information service unit to receive without delay essential information about changes in the operational status of non-visual aids as required for pre-flight briefing and dissemination in accordance with the provisions of Annex 15.



**6.2 DIRECTION FINDING**

- 1) Direction-finding stations work either singly or in groups of two or more stations under the direction of a main direction-finding station.
- 2) A direction-finding station working alone can only determine the direction of an aircraft in relation to itself.

6.2.1 A direction-finding station working alone should give the following, as requested:

- 1) true bearing of the aircraft, using the appropriate phrase;
- 2) true heading to be steered by the aircraft, with no wind, to head for the direction-finding station using the appropriate phrase;
- 3) magnetic bearing of the aircraft, using the appropriate phrase;
- 4) magnetic heading to be steered by the aircraft with no wind to make for the station, using the appropriate phrase.

6.2.2 When direction-finding stations work as a network to determine the position of an aircraft, the bearings taken by each station should be sent immediately to the station controlling the direction-finding network to enable the position of the aircraft to be determined.

**7. AERONAUTICAL BROADCASTING SERVICE****7.1 GENERAL****7.1.1 BROADCAST MATERIAL**

The text of broadcast material shall be prepared by the originator in the form desired for transmission.

**7.1.2 FREQUENCIES AND SCHEDULES**

7.1.2.1 Broadcasts shall be made on specified frequencies and at specified times.

7.1.2.2 Schedules and frequencies of all broadcasts shall be publicized in appropriate documents. Any change in frequencies or times shall be publicized by NOTAM at least two weeks in advance of the change. Additionally, any such change shall, if practicable, be announced on all regular broadcasts for 48 hours preceding the change and shall be transmitted once at the beginning and once at the end of each broadcast.

7.1.2.3 Scheduled broadcasts (other than sequential collective type broadcasts), shall be started at the scheduled time by the general call. If a broadcast must be delayed, a short notice shall be transmitted at the scheduled time advising recipients to "stand by" and stating the approximate number of minutes of delay.

- a) After definite advice has been given to stand by for a certain period, the broadcast shall not be started until the end of the standby period.

- 7.1.2.4 Where broadcasts are conducted on a time-allotment basis, transmission shall be terminated by each station promptly at the end of the allotted time period whether or not transmission of all material has been completed.
- a) In sequential collective type broadcasts each station shall be ready to commence its broadcasts at the designated time. If for any reason a station does not commence its broadcast at the designated time, the station immediately following in sequence shall wait and then commence its broadcast at its own designated time.

### 7.1.3 INTERRUPTION OF SERVICE

In the event of interruption of service at the station responsible for a broadcast, the broadcast shall, if possible, be made by another station until normal service is resumed. If this is not possible, and the broadcast is of the type intended for interception by fixed stations, the stations which are required to copy the broadcasts shall continue to listen on the specified frequencies until normal service is resumed.

## 7.2 RADIOTELEPHONE BROADCAST PROCEDURES

### 7.2.1 BROADCAST TECHNIQUE

- 7.2.1.1 Transmissions by radiotelephone shall be as natural, short and concise as practicable consistent with clarity.
- 7.2.1.2 Rate of speech on radiotelephone broadcasts shall not exceed 100 words per minute.

### 7.2.2 PREAMBLE OF THE GENERAL CALL

The preamble of each radiotelephone broadcast shall consist of the general call, station name, and optionally the time of broadcast (UTC).

## 8. AERONAUTICAL MOBILE SERVICE — DATA LINK COMMUNICATIONS

### 8.1 GENERAL

While the provisions of Chapter 8 are based primarily on the use of controller-pilot data link communications (CPDLC), the provisions of 7.8.1 would apply to other data link applications, where applicable, including surveillance —contract (ADS-C) and data link-flight information services (e.g. D-ATIS, D-VOLMET, etc.).

#### 8.1.1 DATA LINK INITIATION CAPABILITY (DLIC)

##### 8.1.1.1 GENERAL

- a) Before entering an airspace where data link applications are used by the ATS unit, data link communications shall be initiated between the aircraft and the ATS unit in order to register the aircraft and, when necessary, allow the start of a data link application. This shall be initiated by the aircraft, either automatically or by the pilot, or by the ATS unit on address forwarding.

- b) The logon address associated with an ATS unit shall be published in the Aeronautical Information Publications in accordance with Annex 15.

#### **8.1.1.2 AIRCRAFT INITIATION**

On receipt of a valid data link initiation request from an aircraft approaching or within a data link service area, the ATS unit shall accept the request and, if able to correlate it with a flight plan, shall establish a connection with the aircraft.

#### **8.1.1.3 ATS UNIT FORWARDING**

The ground system initially contacted by the aircraft shall provide to the next ATS unit any relevant updated aircraft information in sufficient time to permit the establishment of data link communications.

#### **8.1.1.4 FAILURE**

- i) In the case of a data link initiation failure, the data link system shall provide an indication of the failure to the appropriate ATS unit(s). The data link system shall also provide an indication of the failure to the flight crew when a data link initiation failure results from a logon initiated by the flight crew.
- ii) The ATS unit shall establish procedures to resolve, as soon as practicable, data link initiation failures. Procedures shall include, as a minimum, verifying that the aircraft is initiating a data link request with the appropriate ATS unit (i.e. the aircraft is approaching or within the ATS unit's control area); and if so:
  - a) when a flight plan is available, verify that the aircraft identification, aircraft registration, or aircraft address and other details contained in the data link initiation request correspond with details in the flight plan, and where differences are detected verify the correct information and then make the necessary changes; or
  - b) when a flight plan is not available, create a flight plan with sufficient information in the flight data processing system, to achieve a successful data link initiation; then
  - c) arrange for the re-initiation of data link.
- iii) The aircraft operator shall establish procedures to resolve, as soon as practicable, data link Initiation failures. Procedures shall include, as a minimum, that the pilot:
  - a) verify the correctness and consistency of the flight plan information available in the FMS or equipment from which data link is initiated, and where differences are detected make the necessary changes; and
  - b) verify the correct address of the ATS unit; then
  - c) re-initiate data link.

**8.1.2 COMPOSITION OF DATA LINK MESSAGES**

8.1.2.1 The text of messages shall be composed in standard message format (e.g. CPDLC message set), in plain language or in abbreviations and codes, as prescribed in 17.3.7. Plain language shall be avoided when the length of the text can be reduced by using appropriate abbreviations and codes. Non-essential words and phrases, such as expressions of politeness, shall not be used.

8.1.2.2 The following characters are allowed in the composition of messages:

Letters: ABCDEFGHIJKLMNOPQRSTUVWXYZ

8.1.2.3 Roman numerals shall not be employed. If the originator of a message wishes the addressee to be informed that Roman figures are intended, the Arabic figure or figures shall be written and preceded by the word ROMAN.

**8.1.3 DISPLAY OF DATA LINK MESSAGES**

8.1.3.1 Ground and airborne systems shall allow for messages to be appropriately displayed, printed when required, and stored in a manner that permits timely and convenient retrieval should such action be necessary.

8.1.3.2 Whenever textual presentation is required, the English language shall be displayed as a minimum.

**8.2 CPDLC PROCEDURES**

The CPDLC message set referred to in this section can be found in the PANS-ATM, Appendix 5.

8.2.1 In all communications the highest standard of discipline shall be observed at all times.

8.2.1.1 Consequences of human performance, which could affect the accurate reception and comprehension of messages, should be taken into consideration when composing a message. Guidance material on human performance can be found in the Human Factors Training Manual (Doc 9683) and Human Factors Guidelines for Air Traffic Management (ATM) Systems (Doc 9758).

8.2.2 Ground and airborne systems shall provide controllers and pilots with the capability to review and validate any operational messages they send.

8.2.3 Ground and airborne systems shall provide controllers and pilots with the capability to review, validate and when applicable, acknowledge any operational messages they receive.

8.2.4 The controller shall be provided with the capability to respond to messages, including emergencies, to issue clearances, instructions and advisories, and to request and provide information, as appropriate.

8.2.5 The pilot shall be provided with the capability to respond to messages, to request clearances and information, to report information, and to declare or cancel an emergency.

8.2.6 The pilot and the controller shall be provided with the capability to exchange messages which include standard message elements, free text message elements or a combination of both.

8.2.7 Unless specified by the appropriate ATS Authority, voice read-back of CPDLC messages shall not be required.

### **8.2.8 Establishment of CPDLC**

8.2.8.1 The controller and the pilot shall be informed when CPDLC has been successfully established.

8.2.8.2 CPDLC shall be established in sufficient time to ensure that the aircraft is communicating with the appropriate ATC unit.

8.2.8.3 The controller and pilot shall be informed when CPDLC is available for operational use, at initial establishment, as well as on resumption of CPDLC after a failure.

8.2.8.4 The pilot shall be able to identify the air traffic control unit providing the air traffic control service at any time while the service is being provided.

8.2.8.5 When the airborne system detects that CPDLC is available for operational use, it shall send the CPDLC downlink message element CURRENT DATA AUTHORITY.

#### **8.2.8.6 AIRBORNE-INITIATED CPDLC**

- a) When an ATC unit receives an unexpected request for CPDLC from an aircraft, the circumstances leading to the request shall be obtained from the aircraft to determine further action.
- b) When the ATC unit rejects a request for CPDLC, it shall provide the pilot with the reason for the rejection using an appropriate CPDLC message.

#### **8.2.8.7 ATC UNIT-INITIATED CPDLC**

- a) An ATC unit shall only establish CPDLC with an aircraft if the aircraft has no CPDLC link established, or when authorized by the ATC unit currently having CPDLC established with the aircraft.
- b) When a request for CPDLC is rejected by an aircraft, the reason for the rejection shall be provided using CPDLC downlink message element NOT CURRENT DATA AUTHORITY or message element NOT AUTHORIZED NEXT DATA AUTHORITY, as appropriate. Local procedures shall dictate whether the reason for rejection is presented to the controller. No other reasons for airborne rejection of ATC unit-initiation of CPDLC shall be permitted.

**8.2.9 EXCHANGE OF OPERATIONAL CPDLC MESSAGES**

- 8.2.9.1        Controllers and pilots shall construct CPDLC messages using standard message elements, free text message elements or a combination of both.
- a) When CPDLC is being used, and the intent of the message is included in the CPDLC message set contained in the PANS-ATM, Appendix 5, the associated standard message elements shall be used.
  - b) Except as provided by 17.8.2.12.1, when a controller or pilot communicates via CPDLC, the response should be via CPDLC. When a controller or pilot communicates via voice, the response should be via voice.
  - c) Whenever a correction to a message sent via CPDLC is deemed necessary or the contents of a message needs to be clarified, the controller or pilot shall use the most appropriate means available for issuing the correct details or for providing clarification.
    - i)        When voice communications are used to correct a CPDLC message for which no operational response has yet been received, the controller's or pilot's transmission shall be prefaced by the phrase: "DISREGARD CPDLC (*message type*) MESSAGE, BREAK" — followed by the correct clearance, instruction, information or request.
    - ii)       When referring to and identifying the CPDLC message to be disregarded, caution should be exercised in its phrasing so as to avoid any ambiguity with the issuance of the accompanying corrected clearance, instruction, information or request.
    - iii)      If a CPDLC message that requires an operational response is subsequently negotiated via voice, an appropriate CPDLC message closure response shall be sent to ensure proper synchronization of the CPDLC dialogue. This could be achieved either by explicitly instructing the recipient of the message via voice to close the dialogue or by allowing the system to automatically close the dialogue.
- 8.2.9.2        The composition of a CPDLC message shall not exceed five message elements, only two of which may contain the route clearance variable.
- a)        The use of long messages or messages with multiple clearance elements, multiple clearance request elements or messages with a combination of clearances and information should be avoided where possible.
- 8.2.9.3        CPDLC ground systems and airborne systems shall be capable of using the CPDLC message alert attributes in order to draw attention to higher priority messages.
- a)        The alert attribute shall delineate the type of alerting required upon message receipt. Alert types are presented in Table 8-1.

- b) The response attribute shall delineate valid responses for a given message element. Response types are presented in Table 8-2 for uplink messages and Table 8-3 for downlink messages.

#### 17.8.2.10 DISPLAY OF CPDLC MESSAGES

ATC units utilizing a CPDLC message contained in the PANS-ATM should display the associated text pertaining to that message as presented in the PANS-ATM, Appendix 5.

#### 8.2.11 FREE TEXT MESSAGE ELEMENTS

- a) The use of free text message elements by controllers or pilots should be avoided.
- b) When the CPDLC message set contained in the PANS-ATM (Doc 4444) does not provide for specific circumstances, the appropriate ATS Authority may determine that it is acceptable to use free text message elements. In such cases, the appropriate ATS Authority, in consultation with operators and other ATS authorities that may be concerned, shall define display format, intended use and attributes for each free text message element and publish them with relevant procedures in the AIPs.
- c) Free text message elements should be stored for selection within the aircraft or ground system to facilitate their use.

#### 8.2.12 EMERGENCIES, HAZARDS AND EQUIPMENT FAILURE PROCEDURES

- 8.2.12.1 When a CPDLC emergency message is received, the controller shall acknowledge receipt of the message by the most efficient means available.
- 8.2.12.2 When responding via CPDLC to all other emergency or urgency messages, uplink message ROGER shall be used.
- 8.2.12.3 When a CPDLC message requires a logical acknowledgement and/or an operational response, and such a response is not received, the pilot or controller, as appropriate, shall be alerted.
- 8.2.12.4 Failure of **CPDLC**
  - i) A CPDLC failure should be detected in a timely manner.
  - ii) The controller and pilot shall be alerted to a failure of CPDLC as soon as a failure has been detected.

- iii) When a controller or pilot is alerted that CPDLC has failed, and the controller or pilot needs to communicate prior to CPDLC being restored, the controller or pilot should revert to voice, if possible, and preface the information with the phrase:

CPDLC FAILURE.

- iv) Controllers having a requirement to transmit information concerning a complete CPDLC ground system failure to all stations likely to intercept should preface such a transmission by the general call ALL STATIONS CPDLC FAILURE, followed by the identification of the calling station.
- v) When CPDLC fails and communications revert to voice, all CPDLC messages outstanding should be considered not delivered and the entire dialogue involving the messages outstanding should be recommenced by voice.
- vi) When CPDLC fails but is restored prior to a need to revert to voice communications, all messages outstanding should be considered not delivered and the entire dialogue involving the messages outstanding should be recommenced via CPDLC.

#### **8.2.12.5 INTENTIONAL SHUTDOWN OF CPDLC**

- a) When a system shutdown of the communications network or the CPDLC ground system is planned, a NOTAM shall be published to inform all affected parties of the shutdown period and if necessary, the details of the voice communication frequencies to be used.
- b) Aircraft currently in communication with the ATC unit shall be informed by voice or CPDLC of any imminent loss of CPDLC service.
- c) The controller and pilot shall be provided with the capability to abort CPDLC.

#### **8.2.12.6 FAILURE OF A SINGLE CPDLC MESSAGE**

When a controller or pilot is alerted that a single CPDLC message has failed, the controller or pilot shall take one of the following actions, as appropriate:

- a) via voice, confirm the actions that will be undertaken with respect to the related dialogue, prefacing the information with the phrase: CPDLC MESSAGE FAILURE;
- b) via CPDLC, reissue the CPDLC message that failed.

#### **8.2.12.7 DISCONTINUATION OF THE USE OF CPDLC PILOT REQUESTS**



- a) When a controller requires all stations or a specific flight to avoid sending CPDLC requests for a limited period of time, the following phrase shall be used: ((call sign) or ALL STATIONS) STOP SENDING CPDLC REQUESTS [UNTIL ADVISED] [(reason)]
- b) The resumption of the normal use of CPDLC shall be advised by using the following phrase: ((call sign) or ALL STATIONS) RESUME NORMAL CPDLC OPERATIONS

**8.2.13** Where the testing of CPDLC with an aircraft could affect the air traffic services being provided to the aircraft, coordination shall be effected prior to such testing.