GEN 3.4 COMMUNICATION SERVICES

1. Responsible service

skyguide is responsible for the provision of telecommunication and navigation facilities at the aerodromes of Bern-Belp, Genève, Lugano, Zurich and for all en-route services.
Addresses: REF GEN 3.3-6.1 and GEN 3.3-6.2,

At all other aerodromes, the aerodrome operator is responsible for its own aerodrome services.
Addresses: REF AD 2, 2.2 NR 5

Applicable ICAO documents refer to GEN 1.7

For differences from ICAO Standards, Recommended Practices and Procedures, refer to GEN 1.7

2. Area of responsibility

OFCOM is charged with frequency assignments for aeronautical communications and navigation facilities (Art. 5 of 784.102.1 ”Verordnung über Frequenzmanagement und Funkkonzessionen / Ordonnance sur la gestion des fréquences et les concessions de radiocommunication / Ordinanza sulla gestione delle frequenze e sulle concessioni di radiocomunicazione” of 9 MAR 2007).

3. Types of service

3.1 Radio navigation services

Radio navigation facilities are listed in GEN 2.5. The service may not be available in parts of the DOC indicated in the remarks columns of ENR 4.1 and AD 2.19 due to topographically limited line-of-sight signal propagation. Locators are listed as NDB.

Frequency range and channel spacing of navigation aids are indicated below where ICAO Standards provide some flexibility for regional or national selection („none” indicates that there is no selection to be made):

Marker		none	
NDB		frequency range (national):	300 - 405 kHz
		spacing (regional):	0.5 kHz (however, ADF receiver tuning capability in 0.5 kHz steps is not required)
ILS	Localizer	channel spacing (regional):	50 kHz
	Glide path	channel spacing (regional):	150 kHz
VOR		channel spacing (regional):	50 kHz
DME		X and Y channels only.	

Navigation aids are subject to periodic flight checks.

At Swiss aerodromes, the ILS backbeam shall not be used.

3.1.1 Compatibility with FM broadcasting stations

Swiss regulations are in compliance with the provisions on interference immunity performance for ILS localizer receivers and for VOR receivers (§ 3.1.4 and 3.3.8 of ICAO Annex 10,Volume I).

Compatibility assessments are carried out by OFCOM assisted by FOCA. They are based on Recommendation ITU-R IS.1009-1 “Compatibility between the sound-broadcasting service in the band of about 87-108 MHz and the aeronautical services in the band 108-137 MHz”.

Loran-C is not available in Switzerland. Likewise, no time signals are broadcast for air navigation.

Gaps in GPS signal coverage, as well as harmful interference, may be encountered throughout the entire airspace, but particularly south of the Swiss Alps.

3.2 Voice and/or data link services

3.2.1 Voice services

Continuous protection is maintained of these frequencies/channels during the hours of service of the air traffic services units.

Swiss VHF air-ground facilities will communicate with aircraft in the frequency range and with the channel spacing as indicated below:

Frequency range:	118.000 - 136.975 MHz
Channel spacing:	**8.33 kHz and 25 kHz**, REF: GEN 1.5

Offset carrier systems are used for a number of services, mainly in the lower airspace.

Uncontrolled aerodromes are equipped with non-ATS aeronautical stations and are identified by the Call sign suffix AERODROME (AD). For details see
- ENR 6.1 Radio Facility Index Chart, GEN 3.3;
- VFR Manual COM-1-1.

A radiotelephony operator's licence, issued by the appropriate authorities of the State in which the aircraft is registered, is required for communications with air traffic services units, except for the services listed below. For requirements regarding obtaining an operator's licence in Switzerland, see GEN 1.6, REF 748.222.1.

No radiotelephony operator’s licence is required for communications:
a. between aircraft and AFIS;
b. on the frequencies allocated for special purposes, see
   - ENR 5.5,
   - GEN 3.6;
c. by a student pilot
   - with the control tower of the aerodrome at which the instruction is taking place, in so far as he is supervised by his flight instructor,
   - with the air traffic services units used when carrying out his navigation flight during final instruction.

Radiotelephony procedures are contained in GEN 3.3. For phraseology, see ICAO Annex 10, Volume II. For special procedures see also:
- ENR 5.5, glider flying;
- ENR 5.5, free balloon ascents;
- ENR 1.12, interception procedures; and
- GEN 3.6, search and rescue.

Radio contact with military air traffic control shall only be effected on the frequencies published. The use of other military radio frequencies by civil pilots is allowed in cases of distress or urgency only.

Information on the provision of emergency satellite voice calls from aircraft via Inmarsat satellites is contained in AD 2.18 sections where applicable.

3.2.2 Data link services - CPDLC

3.2.2.1 Introduction

The controller-pilot data link communication (CPDLC) application provides a means of communication between the controller and pilot, using data link for ATC communication. This application includes a set of clearance/information/request message elements which correspond to the phraseologies used in the radiotelephony environment.

CPDLC services are available above FL145, as a minimum, within the FIR/UIR Switzerland.

The following CPDLC services are provided in this airspace:

- DLIC (data link initiation capability)
- ACL (ATC clearances and instructions)
- ACM (ATC communications management)
- AMC (ATC microphone check)

Provision of CPDLC services in Switzerland is based on the requirements of the IR (EU) 923/2012, IR (EU) 2017/373 and IR (EU)2023/1770, including amendments thereof. CPDLC is provided only to ATN Protected Mode (PM) CPDLC equipped aircraft registered in advance on the “Log-on List”. Log-on from FANS1/A or non-PM CPDLC capable aircraft, as well as from PM CPDLC capable but not registered on the “Log-on List”, will not be accepted.

For additional information and instruction on how to register an aircraft on the “Log-on List”, visit EUROCONTROL wiki page on DPMF (Data link Performance Monitoring).

3.2.2.2 General:

In all CPDLC communications, the highest standard of discipline shall be observed at all times (Ref. ICAO Annex 10, Vol. II, §8.2.1).

The decision to use either voice or CPDLC shall be at the discretion of the controller and/or pilot involved.

Pilots should be aware that the total turn-around time for an airborne initiated CPDLC dialogue may be up to more than four (4) minutes, hence, voice should be used for any communication requiring an immediate response and/or action.

Voice read-back is not required for any CPDLC instruction.

If uncertainty arises regarding a data link message, voice communication shall always be used.

3.2.2.3 Flight Plan

In order to use the CPDLC services, pilots shall file the following in the relevant items of their flight plan:

- item 10a - J1 for the CPDLC ATN VDL Mode 2 capable aircraft;
- item 18 - the indicator CODE/ followed by the aircraft 24-bit address expressed in the form of alphanumerical code of six hexadecimal characters.

For flights granted a CPDLC exemption, the indicator DAT/CPDLCX shall be included in item 18 of the flight plan.

3.2.2.4 DLIC Log-on

Datalink log-on is mandatory for all capable and eligible flights.

The data link address for Geneva ACC is LSAG.

The data link address for Zurich ACC is LSAZ.

CPDLC shall be established in sufficient time to ensure that the aircraft is communicating with the appropriate ATC unit. Log-on shall be initiated by the pilot. Pilot shall log-on using its ICAO call sign as filed in the flight plan. Pilot shall not use a two-letter IATA flight ID or insert a leading zero [0] into a call sign, as these actions will result in a failed log-on.

Log-on should be initiated 15 minutes prior to entry into Geneva ACC or Zurich ACC airspace, unless log-on has been established with an upstream CPDLC capable unit, in which case the CPDLC communications will be transferred concurrently with the voice communications. For aircraft departing from an aerodrome in close proximity to Geneva ACC or Zurich ACC airspace, and for which one of the two is the first CPDLC capable unit, log-on can be initiated when the aircraft is on the ground.

Under normal conditions, only one log-on per flight to the first ATS unit downstream is required, as the log-on will be automatically forwarded to the next ATC unit by the ground. However, if the automatic forward has not worked, or can't be implemented, pilot should log-on manually to the next ATS unit, in sufficient time (unless differently requested by the controller, via voice).

3.2.2.5 CPDLC Services

The controller or pilot shall construct CPDLC messages using the pre-defined message set, or free text.
Standard CPDLC messages available for exchange in UIR/FIR Switzerland, are in compliance with the technical standards referred to in ICAO Annexes and Documents.

3.2.2.6 Message Restrictions and Error Management

If a ground system receives a message that is not supported, or constitutes an error to the technical rules for CPDLC communication, flight crew will receive an automatic reply indicating the nature of the error and, if applicable, required actions.

3.2.2.7 Voice interruption of CPDLC dialogue:

When using voice to correct an unanswered CPDLC message, the controller shall initiate voice communication using the phrase "**DISREGARD CPDLC** (message type) **MESSAGE, BREAK**" and deliver the correct clearance within the same transmission.

3.2.2.8 CPDLC Imposed Silence

In order to manage the sector workload, controllers may require all stations or a specific flight to avoid sending CPDLC requests for a limited period of time. For imposing or revoking CPDLC silence, the following phrases, either as a voice or a CPDLC message shall be used:

ALL STATIONS (or [call sign] as applicable), **STOP SENDING CPDLC REQUESTS [UNTIL ADVISED]** [(reason)]
ALL STATIONS (or [call sign] as applicable), **RESUME NORMAL CPDLC OPERATIONS**

3.2.2.9 CPDLC Failure

When alerted that CPDLC has failed, the controller should inform all stations under sector jurisdiction, using the following phrase:

ALL STATIONS, CPDLC FAILURE, [identification of the calling station]

Some failures may result in termination of the existing data link connections with aircraft that are under control of a sector. In this case, it will not be possible for ATC to re-initiate dialogues via CPDLC unless the pilot re-initiates the data-link log-on process in order to re-establish the data link connection.

The controller may inform aircraft under his jurisdiction when the CPDLC service is restored, using the following phrase:

ALL STATIONS, RESUME NORMAL CPDLC OPERATIONS

3.2.2.10 Log-off

Flights leaving Geneva ACC or Zurich ACC towards a non-CPDLC capable airspace will be logged off automatically. No pilot action is required.

3.2.2.11 Contacts:

Further information on CPDLC implementation in Switzerland can be obtain at the following address:

Post: SKYGUIDE
Swiss Air Navigation Services Agency Ltd.
P.O. Box 796
CH-1215 Geneva 15
Phone: +41 43 931 63 54
Fax: +41 43 931 60 19
Email: atm@skyguide.ch
URL: http://www.skyguide.ch

3.3 Broadcasting service

3.3.1 Aeronautical fixed service

The Swiss automatic Aeronautical Fixed Telecommunications Network (AFTN) centre is located at the telecommunication centre of **skyguide** in Geneva.

Postal address	TEL	TELEX / AFTN	FAX	RMK
skyguide CH-1215 Geneva 15	+41 (0) 22 747 13 73 (supervisor)	415 707 com ch LSSSYFYX	+41 (0)22 417 45 09	H24

Arriving messages to addresses in Switzerland are transmitted by the Swiss centre:

- through direct lines to the equipped recipients;
- by telex or fax to addresses equipped accordingly;
- In AD 2 and VFR Manual, AD INFO;
- to the COM centre Geneva or Zurich for further transmission through telephone to other recipients.

Departing messages admitted in AFTN shall be transmitted by telex or telephone to the telecommunication centres Geneva or Zurich. Telex-equipped units shall, as a rule, preferably use telex equipment for transmitting messages. Exceptions are possible with prior agreement. Transmission through fax instead of telephone is possible if it is quickly followed by telephone contact with the recipient (in case of checks, corrections, discussions, etc.). The message is not valid without a telephone confirmation and will not be transmitted further by the telecommunication centres. For filing and transmission of flight plans and ATS messages, REF GEN 1.6-1.1, 748.215.1.

AERONAUTICAL FIXED SERVICES							
STATION		CORRESPON-DENT		Type of circuit	Traffic type	Hours UTC	Remarks
Name	AFS address	Name	Call sign				
1	2	3	4	5	6	7	8
Bâle-Mulhouse	LFSBZPZX	SCT Bordeaux	LFLF	PTP-CCT	AFTN	H24	
		Paris ACC		LTF	ATS	H24	
		Zurich ATC		LTF	ATS	H24	
TWR/APP Bern-Belp	LSZBZTZX	Geneva ATC		LTF	ATS	HO	
		Zurich ATC		LTF	ATS	HO	
ARO Geneva	LSGGZPZA	AFTN/CIDIN CENTER Geneva	LSSS	PTP-CCT	AFTN	H24	Fax: +41 (0) 22 417 45 09 Telex: 415 707 com ch
ACC Geneva	LSAGZRZX	Bern-Belp TWR/ APP		LTF	ATS	HO	
		Marseille ACC		LTF	ATS	H24	
		Milan ACC		SWI-CCT	ATS	H24	
		Paris ACC		PTP-CCT	ATS	H24	
		Reims ACC		SWI-CCT	ATS	H24	
		Zurich ATC		PTP-CCT			
		ARO/AAU/ATS Bern-Belp	LSZB	SWI-CCT	AFTN	HO	
AFTN/CIDIN/ CENTER Geneva	LSSSYFYX	ARO/AAU/ATS Geneva	LSGG/ LSAG	PTP-CCT	AFTN	H24	Fax: +41 (0) 22 417 45 09
		ARO/AAU/ATS Lugano	LSZA	SWI-CCT	AFTN	HJ	
		ARO/AAU/NOF/ ATS Zurich	LSZH/ LS AZ	PTP-CCT	AFTN	H24	Telex: 415 707 com ch
		OTHER AD/AAU/ AO/ADM/MIL	LS..	SWI-CCT	AFTN	H24/ HJ	
		CIDIN CENTER Bordeaux	LFLF	CIDIN-PVC	AFTN	H24	Phone: +41 (0) 22 747 13 73
		CIDIN CENTER Frankfurt	EDDD	CIDIN-PVC	AFTN	H24	
		CIDIN CENTER Rome	LIII	CIDIN-PVC	AFTN	H24	
TWR Lugano	LSZAZTZX	Milan ACC		LTF	ATS	HO	

SWI-CCT = Switched Circuit
PTP-CCT = Point To Point Circuit
LTF = Land Line Telephone

AERONAUTICAL FIXED SERVICES							
STATION		CORRESPON-DENT		Type of circuit	Traffic type	Hours UTC	Remarks
Name	AFS address	Name	Call sign				
1	2	3	4	5	6	7	8
ARO Zurich	LSZHZPZX	AFTN/CIDIN CENTER Geneva	LSSS	PTP-CCT	AFTN	H24	
ACC Zurich	LSAZZRZX	Bâle-Mulhouse TWR		LTF	ATS	H24	
		Bern-Belp TWR/ APP		LTF	ATS	HO	
		Paris ACC		LTF	ATS	H24	
		Frankfurt ACC		LTF	ATS	H24	
		Geneva ATC		LTF	ATS	H24	
		Milan ACC		LTF	ATS	H24	
		Munich ACC		LTF	ATS	H24	
		Rhein UAC		LTF	ATS	H24	
		Stuttgart		LTF	ATS	H24	
		Reims ACC		LTF	ATS	H24	
SWI-CCT = Switched Circuit PTP-CCT = Point To Point Circuit LTF = Land Line Telephone							

3.4 Languages used

English, French, German, Italian

3.5 Where detailed information can be obtained

Details of the various facillities available for the en-route traffic can be found in ENR 4. Details of the facilities available at the individual aerodromes can be found in AD 2. In cases where the facility is serving both the en-route traffic and the aerodromes, details are given in the relevent sections of ENR 4 and AD 2.
The DOC is indicated in the remarks column of ENR 4.1 and AD 2.19 for each NDB (range) and VOR. Deviations from the standard ILS DOC are also indicated there.
VHF frequencies/channels used for special purposes are listed in ENR 5.5.
Information on the provision of emergency satellite voice calls from aircraft utilising Inmarsat satellites is contained in AD 2.18 sections, where applicable.

4. Requirements and conditions

A type approval issued by FOCA (REF GEN 1.6-1.1 748.215.1) and a licence issued by the Federal Office for Communications (OFCOM) is required for the installation and operation of communications, navigation and surveillance equipment in aircraft registered in Switzerland. Type approvals and licences are also required for the installation and operation of ground-based equipment and are issued by OFCOM (784.101.2 ”Verordnung über Fernmeldeanlagen / Ordonnance sur les installations de télécommunication / Ordinanza sugli impianti di telecomunicazione” of 6 OCT 1997 and 784.102.1).

4.1 Frequency protection and harmful interference

A service is afforded frequency protection in the airspace defined by the DOC. The use of a radio navigation aid and the ATC air-ground communication service outside its DOC may be affected by interference and interfere with another service. The DOC for ATC communications services is as indicated below:

TWR	25 NM / 4000 ft AGL (exceptionally 16 NM / 3000 ft AGL);
APP	40 NM / FL 150 (exceptionally 25 NM / FL 100 or 50 NM / FL 250);
ACC	control sector area / FL indicated in the remarks column; and
ATIS	60 NM / FL 200 (exceptionally 25 NM / 4000 ft AGL).

Interference may be experienced in the vicinity of high power broadcast stations.
Harmful interference should be reported to the relevant service provider and include the following information:

a. frequency/channel on which the interference occurred;
b. position and height of the aircraft;
c. aircraft registration letter;
d. date and time of the interference; and
e. description of the interfering signal.

Information about facilities which are U/S for maintenance purposes will be promulgated by NOTAM or ATIS.