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Technical Requirements for the Operation of Mobile Stations in the Aeronautical Service

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Preface

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Contents

1. Scope

These are the technical requirements for the operation of mobile stations in the aeronautical service in Canada.

2. Definitions

For the purpose of these requirements, *aircraft station* means a mobile station, including a hand-held radio, that is installed or operated on board an aircraft.

2.1 Schedule Abbreviations:

AOCC	-	Aeronautical Operational Control Communications
AMS	-	Aeronautical Mobile Service
AMSS	-	Aeronautical Mobile-Satellite Service
AMT	-	Aeronautical Mobile Telemetry
ASDE	-	Airport Surface Detection Equipment
ATC	-	Air Traffic Control (Services/Stations)
AWIS	-	Aviation Weather Information Service
AWOS	-	Automated Weather Observation System
CA	-	Controlled Aerodrome
CARS	-	Community Aerodrome Radio Station
FSS	-	NAV CANADA Flight Service Station
GAC	-	General Aviation Communication
GBAS	-	Ground-based Augmentation System
GPS	-	Global Positioning System
GLONASS	-	Global Orbiting Navigation Satellite System
GNSS	-	Global Navigation Satellite System
ICAO	-	International Civil Aviation Organization
MLS	-	Microwave Landing System
RX	-	Receive Only
SAR	-	Search and Rescue
UCA	-	Uncontrolled Aerodrome
VFR	-	Visual Flight Rules
(R)	-	En-route Frequencies
(OR)	-	Off-route Frequencies

3. Use of Approved Radio Apparatus

The operator of an aircraft station shall operate radio apparatus that meets applicable standards.

4. Identification

The operator of a mobile station in the aeronautical service shall identify the station using:

(a) in the case of an aircraft station,

(i) the official registration marks of the aircraft;

(ii) a word designating the air operator, followed by the flight identification number; or

(iii) other methods of identification that have been agreed to under a special agreement between Canada and other governments, and on condition that they are internationally known; and

(b) in the case of a mobile other than an aircraft, any appropriate means that will allow the identification of the station.

5. Radionavigation Frequencies Allocated to Mobile Stations in the Aeronautical Service

5.1 Receive Radionavigation Frequencies Allocated to Mobile Stations in the Aeronautical Service

The operator of an aircraft radionavigation station shall operate within frequency bands set out in Column I of Schedule I.

5.2 Frequency Bands for Aeronautical Radionavigation

The operator of an aircraft radionavigation station shall operate within frequency bands set out in Column I of Schedule III.

6. Frequency Bands for Communications with Ground Stations in the Aeronautical Service

6.1 Frequencies of Operation

The operator of an aircraft station shall operate only on those radio frequencies within the frequency bands set out in Column I of Schedule II.

6.2 Frequency Usage

The operator of an aircraft station shall operate in accordance with the usage set out in Column II of Schedule II for the frequency band set out in Column I for that corresponding item.

6.3 Frequency Restrictions

6.3.1 The operator of an aircraft station shall operate within the frequency band set out in Column I of Schedule II in accordance with the restrictions set out in Column III for that corresponding item.

6.3.2 For the purposes of complying with the applicable restrictions in Section 6.3.1,

(a) *Primary* means that a station operating in the aeronautical service can claim protection from harmful interference from a station performing a secondary service in that band.

(b) *Secondary* means that a station operating in the aeronautical service shall not:

(i) cause harmful interference to a station performing a primary or co-primary service; or

(ii) claim protection from a station performing a primary or co-primary service.

(c) *Co-primary* means that a station operating in the aeronautical service can claim protection from harmful interference from a station performing a secondary service in that band, and shall not cause harmful interfere to a station performing another co-primary service.

6.4 Power Restrictions

An operator of an aircraft station that operates radio apparatus in a frequency band in Column I of Schedule II shall be restricted to 400 watts peak envelope power for items 1 to 22 and an output power of 30 watts for items 23 to 28.

7. Miscellaneous Frequencies for Mobile Stations Operating in the Aeronautical Service

7.1 Frequency Usage

The operator of an aircraft station shall operate radio apparatus on frequencies set out in Column I of Schedule IV in accordance with usage set out in Column II of that corresponding item.

7.2 Power Restrictions

The operator of an aircraft station operating radio apparatus on a frequency set out in Column I of Schedule IV shall be restricted to 400 watts peak envelope power for items 1 and 2 and an output power of 30 watts for items 4 to 7. The maximum output power for items 3 and 8 should not exceed 100 mW.

Schedule I - Receive Radionavigation Frequencies Allocated to Mobile Stations in the Aeronautical Service

(See Section 5.1)

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Restrictions and Allocations
1	.009-.014	OMEGA (RX)	RADIONAVIGATION
2	.090-.110	LORAN (RX)	RADIONAVIGATION Fixed
3	.190-.200	ADF (RX)	AERONAUTICAL RADIONAVIGATION
4	.200-.285	ADF (RX)	AERONAUTICAL RADIONAVIGATION Aeronautical Mobile
5	.285-.315	ADF (RX)	MARITIME RADIONAVIGATION and AERONAUTICAL RADIONAVIGATION
6	.315-.325	ADF (RX)	MARITIME RADIONAVIGATION Aeronautical Radionavigation
7	.325-.335	ADF (RX)	AERONAUTICAL RADIONAVIGATION Aeronautical Mobile Maritime Radionavigation
8	.335-.405	ADF (RX)	AERONAUTICAL RADIONAVIGATION Aeronautical Mobile
9	.405-.415	ADF (RX)	RADIONAVIGATION Aeronautical Mobile
10	.510-.525		MOBILE and AERONAUTICAL RADIONAVIGATION
11	.525-.535		BROADCASTING and AERONAUTICAL RADIONAVIGATION
12	1.705-1.800		FIXED, MOBILE, RADIOLOCATION and AERONAUTICAL RADIONAVIGATION

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Restrictions and Allocations
13	74.8-75.2	Marker beacons using various modulation tones. Used in conjunction with the Instrument Landing System (ILS).	AERONAUTICAL RADIONAVIGATION
14	108.0-111.975	Instrument Landing System (ILS) localizers	AERONAUTICAL RADIONAVIGATION
15	108.1-117.975	Very High Frequency (VHF) Omnidirectional Range (VOR). 108.1-111.975 MHz can be used for Terminal VOR. 112.1-117.9 MHz are used for en-route VOR and GBAS.	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) SERVICE
16	328.6-335.4	Instrument Landing System (ILS) Glide Slope, ILS Localizer	AERONAUTICAL RADIONAVIGATION

Schedule II - Frequency Bands for Communications with Ground Stations in the Aeronautical Service

(See Section 6)

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Restrictions and Allocation
1	2.850-3.025		Primary (R)
2	3.025-3.155	Government of Canada exclusive	Primary (OR)
3	3.400-3.500		Primary (R)
4	4.650-4.700		Primary (R)
5	4.700-4.750	Government of Canada exclusive	Primary (OR)
6	5.450-5.480		Primary (R)
7	5.480-5.680		Primary (R)
8	5.680-5.730	Government of Canada exclusive	Primary (OR)
9	6.525-6.685		Primary (R)
10	6.685-6.765		Primary (R)
11	8.815-8.965		Primary (R)
12	8.965-9.040	Government of Canada exclusive	Primary (OR)
13	10.005-10.100		Primary (R)
14	11.175-11.275	Government of Canada exclusive	Primary (OR)
15	11.275-11.400		Primary (R)
16	13.200-13.260	Government of Canada exclusive	Primary (OR)
17	13.260-13.360		Primary (R)
18	15.010-15.100	Government of Canada exclusive	Primary (OR)
19	17.900-17.970		Primary (R)
20	17.970-18.030	Government of Canada exclusive	Primary (OR)
21	21.924-22.000		Primary (R)

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Restrictions and Allocation
22	23.200-23.350	Government of Canada exclusive	Primary (OR)
23	117.9750-121.9875	Air Traffic Control (ATC) Services	Primary
24	121.9875-123.5875	General Aviation Communication (GAC)	Primary
25	123.5875-128.8125	Air Traffic Control (ATC) Services	Primary
26	128.8125-132.0125	Aeronautical Operational Control Communications (AOCC)	Primary
27	132.0125-136.4875	Air Traffic Control (ATC) Services	Primary
28	136.5000-137.0000	Aeronautical Operational Control Communications (AOCC)	Primary
29	849.0-851.0	Ground-to-Air Public Correspondence	Primary
30	894.0-896.0	Air-to-Ground Public Correspondence	Primary

Schedule III - Frequency Bands for Aeronautical Radionavigation

(See Section 5.2)

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Allocation
1	960-1215	Distance Measuring Equipment (DME) and Aircraft Transponders. 978 MHz dedicated for Universal Access Transceivers (UAT). 960-1164 MHz AM(R). 1164-1215 MHz GNSS (Space-to-Earth).	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE (R) SERVICE RADIONAVIGATION SATELLITE
2	1240-1300	GNSS (GPS L1 and GLONASS)	AERONAUTICAL RADIONAVIGATION RADIOLOCATION EARTH EXPLORATION-SATELLITE (active) RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) SPACE RESEARCH (active) Amateur
3	1300-1350	Primary Radar (AASR1)	AERONAUTICAL RADIONAVIGATION RADIOLOCATION RADIONAVIGATION-SATELLITE (Earth-to-space)
4	1350-1370	Primary Radar	AERONAUTICAL RADIONAVIGATION, RADIOLOCATION, FIXED, MOBILE
5	1545-1555	AMS(R)S (Aircraft to satellite communications)	AERONAUTICAL MOBILE-SATELLITE (R) (space-to-Earth), Mobile-Satellite
6	1559-1610		AERONAUTICAL RADIONAVIGATION RADIONAVIGATION-SATELLITE (space-to-Earth)(space-to-space)

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Allocation
7	1610-1610.6		AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space)
8	1610.6-1613.8		AERONAUTICAL RADIONAVIGATION, MOBILE-SATELLITE (Earth-to-space) and RADIOASTRONOMY
9	1613.8-1626.5		AERONAUTICAL RADIONAVIGATION and MOBILE-SATELLITE (Earth-to-space) Mobile-Satellite (space-to-Earth)
10	1646.5-1656.5	AMS(R)S (Aircraft to satellite communications)	AERONAUTICAL MOBILE-SATELLITE (R) (Earth-to-space), Mobile-Satellite
11	2700-2850	Secondary Surveillance Radar (SSR) and primary radar	AERONAUTICAL RADIONAVIGATION Radiolocation
12	2850-2900	Primary radar	AERONAUTICAL RADIONAVIGATION and MARITIME RADIONAVIGATION Radiolocation
13	4200-4400	Airborne Radar Altimeters	AERONAUTICAL RADIONAVIGATION
14	5000-5150	5000-5150 MHz AMS(R)S (Aircraft to satellite communications). 5030-5091 MHz MLS. 5091-5150 MHz AM(R)S and AMT.	AERONAUTICAL RADIONAVIGATION AERONAUTICAL MOBILE SATELLITE (R) SERVICE
15	5150-5250	Wind Shear Radar	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE (Earth-to-space), MOBILE except aeronautical mobile

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Allocation
16	5350-5460	Airborne radar (usually weather turbulence and storm avoidance)	AERONAUTICAL RADIONAVIGATION RADIOLOCATION SPACE RESEARCH (active) EARTH EXPLORATION-SATELLITE (active)
17	8750-8850	Airborne Doppler Navigation Aids	AERONAUTICAL RADIONAVIGATION RADIOLOCATION
18	9000-9200	Precision Approach Radar (Dept. of National Defence) Airborne Weather Radar Primary radar and airborne transponders	AERONAUTICAL RADIONAVIGATION Radiolocation
19	13250-13400	Airborne Transponders interrogated by ground-based stations, Airborne Doppler Navigator, and Weather Radar	AERONAUTICAL RADIONAVIGATION EARTH EXPLORATION-SATELLITE (active) SPACE RESEARCH (active)
20	15400-15700	ASDE	AERONAUTICAL RADIONAVIGATION

Schedule IV- Miscellaneous Frequencies for Mobile Stations Operating in the Aeronautical Service

(See Section 7)

Item	Column I Frequency (MHz)	Column II Usage
1	3.023	SAR, air-to-air & air-to-land
2	5.68	SAR, air-to-air & air-to-land
3	121.5	Aeronautical Emergency Frequency and Emergency Locator Transmitter (ELT) Beacon
4	122.75	ICAO air-to-air (Southern Canadian Airspace)
5	123.1	Aeronautical Emergency Frequency (Auxiliary to 121.500) World-wide SAR
6	123.2	Announcement of Position and Intentions by Aircraft at UCAs
7	123.45	ICAO Air-to-air (Northern Domestic Airspace and North Atlantic)
8	243	SAR & Emergency Locator Transmitter (ELT) Beacon
9	406 - 406.1	Emergency Locator Transmitter (ELT) Beacon