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

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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
ATCS	-	Air Traffic Control Services/Station
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
ICAO	-	International Civil Aviation Organization
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 interference 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 1 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 3 to 8.

Schedule I
(Section 5.1)

Receive Radionavigation Frequencies Allocated to Mobile Stations in the Aeronautical Service

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
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 Maritime Radionavigation
8	.335 - .405	ADF (RX)	AERONAUTICAL RADIONAVIGATION
9	.405 - .415	ADF (RX)	RADIONAVIGATION
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
13	74.8 - 75.2	Marker beacons using various modulation tones. Used in conjunction with the Instrument Landing System (ILS).	AERONAUTICAL RADIONAVIGATION

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Restrictions and Allocations
14	108.0 - 111.975	Instrument Landing System (ILS) localizers	AERONAUTICAL RADIONAVIGATION
15	108.1 - 117.975	Very High Frequency (VHF) Omni directional Range (VOR). 108.1 - 111.975 MHz are used for Terminal VOR. 112.1 - 117.9 MHz are used for en-route VOR.	AERONAUTICAL RADIONAVIGATION
16	328.6 - 335.4	Instrument Landing System (ILS) Glide Slope, ILS Localizer	AERONAUTICAL RADIONAVIGATION

Schedule II
(Section 6)

Frequency Bands for Communications with Ground Stations in the Aeronautical Service

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	Government of Canada exclusive	Primary (OR)

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

Schedule III

(Section 5.2)

Frequency Bands for Aeronautical Radionavigation

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Allocation
1	960 - 1215	Distance Measuring Equipment (DME) and Aircraft Transponders	AERONAUTICAL RADIONAVIGATION
2	1240 - 1300		AERONAUTICAL RADIONAVIGATION RADIOLOCATION, Amateur
3	1300 - 1350	Primary Radar (AASR1)	AERONAUTICAL RADIONAVIGATION Radiolocation
4	1350 - 1370		AERONAUTICAL RADIONAVIGATION, RADIOLOCATION, FIXED, MOBILE
5	1545 - 1555		AERONAUTICAL MOBILE-SATELLITE (R) (space to earth), Mobile- Satellite
6	1559 - 1610		AERONAUTICAL RADIONAVIGATION RADIONAVIGATION- SATELLITE (space to earth)
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		AERONAUTICAL MOBILE- SATELLITE (R) (earth to space), Mobile - Satellite
11	2700 - 2850	Secondary Surveillance Radar (SSR)	AERONAUTICAL RADIONAVIGATION Radiolocation
12	2850 - 2900		AERONAUTICAL RADIONAVIGATION and MARITIME RADIONAVIGATION Radiolocation
13	4200 - 4400	Airborne Radar Altimeters	AERONAUTICAL RADIONAVIGATION
14	5000 - 5150	Microwave Locator Systems	AERONAUTICAL RADIONAVIGATION
15	5150 - 5250	Wind Shear Radar	AERONAUTICAL RADIONAVIGATION
16	5350 - 5460	Airborne radar (usually weather turbulence and storm avoidance)	AERONAUTICAL RADIONAVIGATION Radiolocation
17	8750 - 8850	Airborne Doppler Navigator	AERONAUTICAL RADIONAVIGATION RADIOLOCATION
18	9000 - 9200	Precision Approach Radar (Dept. of National Defence)	AERONAUTICAL RADIONAVIGATION Radiolocation
19	13250 - 13400	Airborne Transponders interrogated by ground based stations, Airborne Doppler Navigator, and Weather Radar	AERONAUTICAL RADIONAVIGATION
20	15400 - 15700		AERONAUTICAL RADIONAVIGATION

Schedule IV
(Section 7)

Miscellaneous Frequencies for Mobile Stations Operating in the Aeronautical Service

Item	Column I Frequency (MHz)	Column II Usage
1	3.023	SAR, air-to-air & air-to-land
2	5.680	SAR, air-to-air & air-to-land
3	121.500	Aeronautical Emergency Frequency and Emergency Locator Transmitter (ELT) Beacon
4	122.750	ICAO air-to-air (Southern Canadian Airspace)
5	123.100	Aeronautical Emergency Frequency (Auxiliary to 121.500) World wide SAR
6	123.200	Announcement of Position and Intentions by Aircraft at UCAs
7	123.450	ICAO Air-to-air (Northern Domestic Airspace and North Atlantic)
8	243.000	SAR & Emergency Locator Transmitter (ELT) Beacon