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

## Preface

Comments and suggestions may be directed to the following address:

Industry Canada  
Radiocommunications and  
Broadcasting Regulatory Branch  
300 Slater Street  
Ottawa, Ontario  
K1A 0C8

Attention: DOSP

E-mail: [spectrum\\_pubs@ic.gc.ca](mailto:spectrum_pubs@ic.gc.ca)

All Spectrum Management and Telecommunications publications are available on the following website: <http://ic.gc.ca/spectrum>.

## Contents

<b>1.</b>	<b>Scope</b> .....	<b>1</b>
<b>2.</b>	<b>Definitions</b> .....	<b>1</b>
<b>3.</b>	<b>Use of Approved Radio Apparatus</b> .....	<b>1</b>
<b>4.</b>	<b>Identification</b> .....	<b>1</b>
<b>5.</b>	<b>Radionavigation Frequencies Allocated to Mobile Stations in the Aeronautical Service</b> ...	<b>2</b>
5.1	Receive Radionavigation Frequencies Allocated to Mobile Stations in the Aeronautical Service .....	2
5.2	Frequency Bands for Aeronautical Radionavigation .....	2
<b>6.</b>	<b>Frequency Bands for Communications with Ground Stations in the Aeronautical Service</b> .....	<b>2</b>
6.1	Frequencies of Operation .....	2
6.2	Frequency Usage .....	2
6.3	Frequency Restrictions .....	2
6.4	Power Restrictions .....	3
<b>7.</b>	<b>Miscellaneous Frequencies for Mobile Stations Operating in the Aeronautical Service</b> ...	<b>3</b>
7.1	Frequency Usage .....	3
7.2	Power Restrictions .....	3
	<b>Schedule I - Receive Radionavigation Frequencies Allocated to Mobile Stations in the Aeronautical Service</b> .....	<b>4</b>
	<b>Schedule II - Frequency Bands for Communications with Ground Stations in the Aeronautical Service</b> .....	<b>6</b>
	<b>Schedule III - Frequency Bands for Aeronautical Radionavigation</b> .....	<b>8</b>
	<b>Schedule IV - Miscellaneous Frequencies for Mobile Stations Operating in the Aeronautical Service</b> .....	<b>11</b>

## 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
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
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 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 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 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)

<b>Item</b>	<b>Column I Frequency Band (MHz)</b>	<b>Column II Usage</b>	<b>Column III Restrictions and Allocations</b>
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

<b>Item</b>	<b>Column I Frequency Band (MHz)</b>	<b>Column II Usage</b>	<b>Column III Restrictions and Allocations</b>
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
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 - Frequency Bands for Communications with Ground Stations  
in the Aeronautical Service**

(See Section 6)

<b>Item</b>	<b>Column I Frequency Band (MHz)</b>	<b>Column II Usage</b>	<b>Column III Restrictions and Allocation</b>
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)

<b>Item</b>	<b>Column I Frequency Band (MHz)</b>	<b>Column II Usage</b>	<b>Column III Restrictions and Allocation</b>
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	Air-to-Ground Public Correspondence	Primary
30	894.0 - 896.0	Ground-to-Air Public Correspondence	Primary

**Schedule III - Frequency Bands for Aeronautical Radionavigation**  
(See Section 5.2)

<b>Item</b>	<b>Column I Frequency Band (MHz)</b>	<b>Column II Usage</b>	<b>Column III Allocation</b>
1	960 - 1215	Distance Measuring Equipment (DME) and Aircraft Transponders	AERONAUTICAL RADIONAVIGATION
2	1240 - 1300		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		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)(space-to-space)
7	1610 - 1610.6		AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space)

Item	Column I Frequency Band (MHz)	Column II Usage	Column III Allocation
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 FIXED-SATELLITE (Earth-to-space), MOBILE except aeronautical mobile
16	5350 - 5460	Airborne radar (usually weather turbulence and storm avoidance)	AERONAUTICAL RADIONAVIGATION RADIOLOCATION SPACE RESEARCH (active) EARTH EXPLORATION- SATELLITE (active)

<b>Item</b>	<b>Column I Frequency Band (MHz)</b>	<b>Column II Usage</b>	<b>Column III Allocation</b>
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 EARTH EXPLORATION- SATELLITE (active) SPACE RESEARCH (active)
20	15400 - 15700		AERONAUTICAL RADIONAVIGATION

**Schedule IV- Miscellaneous Frequencies for Mobile Stations Operating  
in the Aeronautical Service**  
(See Section 7)

<b>Item</b>	<b>Column I Frequency (MHz)</b>	<b>Column II Usage</b>
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