

# 1610.6–1613.8 MHz

## 1. Band Introduction

The primary Federal use of this band is for mobile Earth terminals used in conjunction with the Globalstar commercial mobile-satellite service (MSS) system.

Radioastronomy uses this band as well, to receive signals from space. The National Aeronautics and Space Administration (NASA) operates the Deep Space Network system 70-meter diameter antenna and associated receivers in Goldstone, CA for radio astronomy observations. MSS systems must operate without causing harmful interference to radioastronomy operations.

## 2. Allocations

### 2a. Allocation Table

The frequency allocation table shown below is extracted from the Manual of Regulations and Procedures for Federal Radio Frequency Management (NTIA Manual), Chapter 4 – Allocations, Allotments and Plans.

#### *Table of Frequency Allocations*

##### *United States Table*

<b>Federal Table</b>	<b>Non-Federal Table</b>	<b>FCC Rule Part(s)</b>
1610.6-1613.8 MOBILE-SATELLITE (Earth-to-space) US319 US380 RADIO ASTRONOMY AERONAUTICAL RADIONAVIGATION US260 RADIODETERMINATION-SATELLITE (Earth-to-space)		Satellite Communications (25) Aviation (87)
5.341 5.364 5.366 5.367 5.368 5.372 US208 US342		

**2b. Additional Allocation Table Information**

**5.341** In the bands 1 400-1 727 MHz, 101-120 GHz and 197-220 GHz, passive research is being conducted by some countries in a programme for the search for intentional emissions of extraterrestrial origin.

**5.364** The use of the band 1 610-1 626.5 MHz by the mobile-satellite service (Earth-to-space) and by the radiodetermination-satellite service (Earth-to-space) is subject to coordination under No. 9.11A. A mobile earth station operating in either of the services in this band shall not produce a peak e.i.r.p. density in excess of -15 dB (W/4 kHz) in the part of the band used by systems operating in accordance with the provisions of No. 5.366 (to which No. 4.10 applies), unless otherwise agreed by the affected administrations. In the part of the band where such systems are not operating, the mean e.i.r.p. density of a mobile earth station shall not exceed -3 dB(W/4 kHz). Stations of the mobile-satellite service shall not claim protection from stations in the aeronautical radionavigation service, stations operating in accordance with the provisions of No. 5.366 and stations in the fixed service operating in accordance with the provisions of No. 5.359. Administrations responsible for the coordination of mobile-satellite networks shall make all practicable efforts to ensure protection of stations operating in accordance with the provisions of No. 5.366.

**5.366** The band 1 610-1 626.5 MHz is reserved on a worldwide basis for the use and development of airborne electronic aids to air navigation and any directly associated ground-based or satellite-borne facilities. Such satellite use is subject to agreement obtained under No. 9.21.

**5.367** *Additional allocation:* The bands 1 610-1 626.5 MHz and 5 000-5 150 MHz are also allocated to the aeronautical mobile-satellite (R) service on a primary basis, subject to agreement obtained under No. 9.21.

**5.368** With respect to the radiodetermination-satellite and mobile-satellite services, the provisions of No. 4.10 do not apply in the band 1 610-1 626.5 MHz, with the exception of the aeronautical radionavigation-satellite service.

**5.372** Harmful interference shall not be caused to stations of the radio astronomy service using the band 1 610.6-1 613.8 MHz by stations of the radiodetermination-satellite and mobile-satellite services (No. 29.13 applies).

**US208** Planning and use of the band 1559-1626.5 MHz necessitate the development of technical and/or operational sharing criteria to ensure the maximum degree of electromagnetic compatibility with existing and planned systems within the band.

**US342** In making assignments to stations of other services to which the bands:

13360-13410 kHz	42.77-42.87 GHz*
25550-25670 kHz	43.07-43.17 GHz*
37.5-38.25 MHz	43.37-43.47 GHz*
322-328.6 MHz*	48.94-49.04 GHz*
1330-1400 MHz*	76-86 GHz
1610.6-1613.8 MHz*	92-94 GHz
1660-1660.5 MHz*	94.1-100 GHz
1668.4-1670 MHz*	102-109.5 GHz
3260-3267 MHz*	111.8-114.25 GHz
3332-3339 MHz*	128.33-128.59 GHz*
3345.8-3352.5 MHz*	129.23-129.49 GHz*
4825-4835 MHz*	130-134 GHz
4950-4990 MHz	136-148.5 GHz
6650-6675.2 MHz*	151.5-158.5 GHz
14.47-14.5 GHz*	168.59-168.93 GHz*
22.01-22.21 GHz*	171.11-171.45 GHz*
22.21-22.5 GHz	172.31-172.65 GHz*
22.81-22.86 GHz*	173.52-173.85 GHz*
23.07-23.12 GHz*	195.75-196.15 GHz*
31.2-31.3 GHz	209-226 GHz
36.43-36.5 GHz*	241-250 GHz
42.5-43.5 GHz	252-275 GHz

are allocated (\*indicates radio astronomy use for spectral line observations), all practicable steps shall be taken to protect the radio astronomy service from harmful interference. Emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service (*see ITU Radio Regulations* at Nos. **4.5** and **4.6** and Article **29**).

**US319** In the bands 137-138 MHz, 148-149.9 MHz, 149.9-150.05 MHz, 399.9-400.05 MHz, 400.15-401 MHz, 1610-1626.5 MHz, and 2483.5-2500 MHz, Federal stations in the mobile-satellite service shall be limited to earth stations operating with non-Federal space stations.

**US380** In the bands 1525-1544 MHz, 1545-1559 MHz, 1610-1645.5 MHz, 1646.5-1660.5 MHz, 2000-2020 MHz, 2180-2200 MHz, and 2483.5-2500 MHz, a non-Federal licensee in the mobile-satellite service (MSS) may also operate an ancillary terrestrial component in conjunction with its MSS network, subject to the Commission’s rules for ancillary terrestrial components and subject to all applicable conditions and provisions of its MSS authorization.

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**US260** Aeronautical mobile communications which are an integral part of aeronautical radionavigation systems may be satisfied in the bands 1559-1626.5 MHz, 5000-5250 MHz and 15.4-15.7 GHz.

**US380** In the bands 1525-1544 MHz, 1545-1559 MHz, 1610-1645.5 MHz, 1646.5-1660.5 MHz, 2000-2020 MHz, 2180-2200 MHz, and 2483.5-2500 MHz, a non-Federal licensee in the mobile-satellite service (MSS) may also operate an ancillary terrestrial component in conjunction with its MSS network, subject to the Commission’s rules for ancillary terrestrial components and subject to all applicable conditions and provisions of its MSS authorization.

**3. Federal Agency Use**

**3a. Federal Agency Frequency Assignments Table**

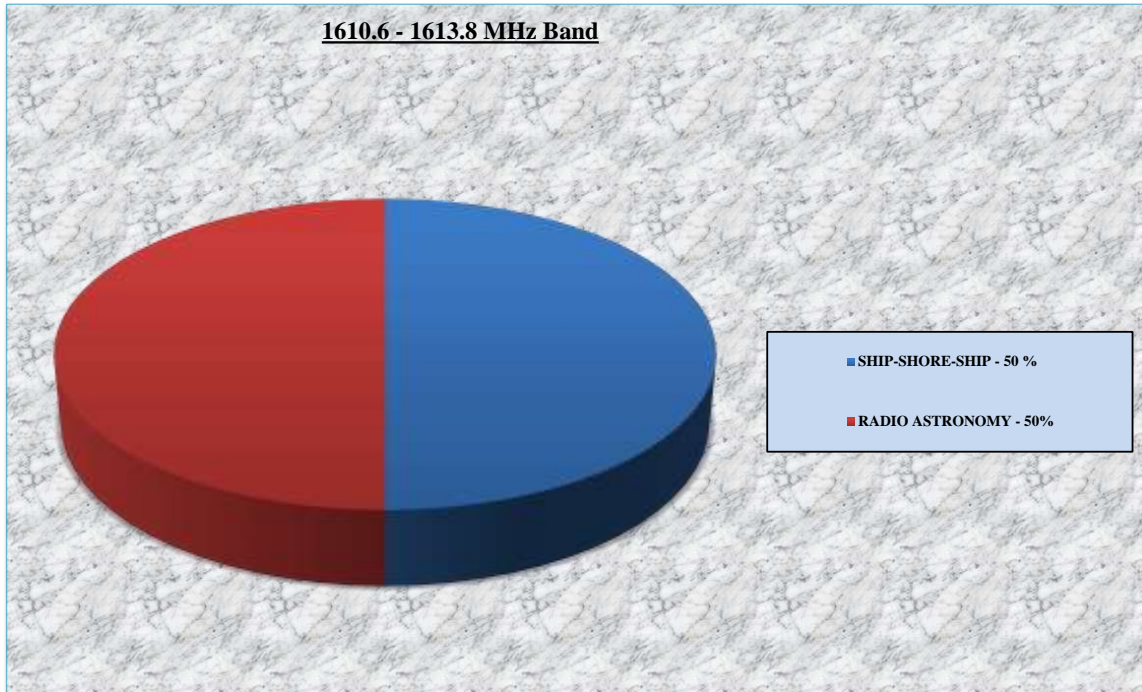
The following table identifies the frequency band, type(s) of allocation(s), types of applications, and the number of frequency assignments by agency.

*Federal Frequency Assignment Table*

<b>1610.6-1613.8 MHz Band</b>						
<b>SHARED BAND</b>						
<b>AGENCY</b>	<b>AERONAUTICAL RADIONAVIGATION MOBILE-SATELLITE (Earth-to-space) RADIO ASTRONOMY RADIO DETERMINATION-SATELLITE (Earth-to-space)</b>					
	<b>TYPE OF APPLICATION</b>					
	<b>RADIO ASTRONOMY</b>	<b>SHIP-SHORE-SHIP</b>				<b>TOTAL</b>
<b>N</b>		<b>2</b>				<b>2</b>
<b>NASA</b>	<b>2</b>					<b>2</b>
<b>TOTAL</b>	<b>2</b>	<b>2</b>				<b>4</b>
<p>The number of actual systems, or number of equipments, may exceed and sometimes far exceed, the number of frequency assignments in a band. Also, a frequency assignment may represent, a local, state, regional or nationwide authorization. Therefore, care must be taken in evaluating bands strictly on the basis of assignment counts or percentages of assignments.</p>						

### 3b. Percentage of Frequency Assignments Chart

The following chart displays the percentage of assignments in the Government Master File for the applications operating in the frequency band 1525-1535 MHz.



Mobile earth station equipment operating in the 1610.6-1613.8 MHz band are licensed by the Federal Communications Commission (FCC) and do not require a frequency assignment in the Government Master File.

Pursuant to Section 7.23 of the NTIA Manual, Federal agencies may operate radio devices as end users of such systems. Such use must be in accordance with FCC rules governing the specified service. Some Federal agencies obtain FCC blanket licenses for operation of multiple handhelds used in conjunction with these non-Federal systems.

## 4. Frequency Band Analysis By Application

### 4a. Mobile-Satellite Service (Earth-to-Space)

In the 1610.6-1613.8 MHz band, the Federal agencies operate Earth terminals in conjunction with the Globalstar commercial non-geostationary MSS systems. This

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system provides continuously available voice and data communication capabilities to Federal users anywhere in the United States or around the world. Mobile earth stations operating in this band are used by Federal law enforcement agencies, Federal emergency management teams, the Department of Defense and the Department of Homeland Security. Mobile earth stations can be used to provide flexible and easily deployable communication systems during emergency support efforts.

Globalstar is also authorized to operate mobile earth stations using an Ancillary Terrestrial Component service supporting an integrated satellite and terrestrial communication network.

#### **4b. Radio Astronomy Service**

The Deep Space Network (DSN) is an international network of antennas that support interplanetary spacecraft missions and radio and radar astronomy observations for the exploration of the solar system and the universe.<sup>1</sup> Within this band, NASA operates the DSN 70-meter diameter antenna and associated receivers in Goldstone, CA (35-25-33 N 116-53-23 W). The DSN is also used to perform radio astronomy observations of the hydroxyl radical spectral lines for research of stellar and expansion velocities, validation theories of the origins, and evolution of the universe. The antenna is extremely sensitive and susceptible to interference.<sup>2</sup>

#### **4c. Aeronautical Radionavigation Service**

The Federal Government is not operating aeronautical radionavigation systems in the 1610.6-1613.8 MHz band at this time.

#### **4d. Radiodetermination Satellite (Earth-to-Space)**

The Federal Government is not operating radiodetermination satellite systems in the 1610.6-1613.8 MHz band at this time.

### **5. Planned Use**

The use of this band by Federal agencies in conjunction with commercial mobile-satellite service is expected to continue indefinitely.

The DSN radio astronomy observations performed in this band are expected to continue indefinitely.

The Federal Government currently has no plans to operate aeronautical radionavigation systems in the 1610.6-1613.8 MHz band.

The Federal Government currently has no plans to operate radiodetermination-satellite systems in the 1610.6-1613.8 MHz band.

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1. Additional information on the DSN is available at <http://deepspace.jpl.nasa.gov/dsn/>

2. To give some idea of DSN's sensitivity, the antennas are able to capture science information that is more than 20 billion times weaker than the power level of a digital watch.