

United States

January 21, 2000

MEMORANDUM

For delivery to: International Telecommunication Union

ITU-D Study Groups Secretariat

Email : devsg2@itu.int

From: United States

Subject: ITU Administrative Circulars CA/08 and CA/71

This is a response from the United States to the joint questionnaire distributed by the Radiocommunication and Telecommunication Development Bureaus in Administrative Circulars CA/71 and CA/08. This questionnaire seeks specified information from administrations and Sector Members on national radio spectrum management. Accordingly, this response is provided by the United States administration and the information provided is limited to a listing of the radio services operated in the respective frequency bands from 27.5 to 960 MHz.

Radio frequency spectrum management responsibilities in the United States are partitioned between the Office of the President (with certain authorities delegated to the Department of Commerce's National Telecommunications and Information Administration- NTIA) and the Federal Communications Commission (FCC) according to their respective mandates defined in the 1934 Communications Act, as amended. In general, the NTIA holds authority for managing the use of the spectrum in the United States by the US Federal Government agencies; the FCC holds authority for managing the use of the spectrum in the United States by non-US Federal Government agencies.

The United States is pleased to provide this contribution for consideration in the preparation of the Joint ITU-R and D Sector Report on the implementation of Resolution 9 adopted at the 1998 World Telecommunication Development Conference.

**IDENTIFICATION OF FOCAL POINTS IN THE UNITED STATES
REGARDING CORRESPONDENCE ON THE QUESTIONNAIRE
CONTAINED IN ITU ADMINISTRATIVE CIRCULARS CA/O8 AND CA/71**

For Radio Frequency Spectrum Uses by US Federal Government Agencies

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For Radio Frequency Spectrum Uses by non-US Federal Government Agencies

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UNITED STATES RESPONSE TO QUESTIONNAIRE

Administrative Circulars CA/08 & CA/71 – Part 1

NATIONAL RADIO FREQUENCY SPECTRUM USES IN THE 27.5 to 960 MHz BANDS

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		

27.5-47 MHz

27.5-28	METEOROLOGICAL AIDS FIXED MOBILE	<i>Private Sector Usage:</i> Primarily used by manufacturing companies for experimental research and development. Also used by businesses and some state governments to maintain communications with their units working at remote/isolated sites.
28-29.7	AMATEUR AMATEUR-SATELLITE	<i>Private Sector Usage:</i> This band is used primarily by amateur radio operators. The general, advanced, and amateur extra classes have access to this entire band while the novice and technician plus classes are limited to the lower part. Amateurs provide emergency, public-service communications in this band. Other licensees in this band include manufacturing companies involved in experimental research and development.

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
29.7-30.005	FIXED MOBILE		<p>29.7-30 <i>Private Sector Usage:</i> Primarily used by manufacturing companies for experimental research and development. Other users include companies involved in forest product manufacturing and international fixed public communications. Some police and fire agencies also make use of this band for short to medium range communications.</p> <p><i>Federal Usage:</i> This band is used for the development and testing of a meteorological radar to measure wind. Further, this band is used for tactical and training on a non-interference basis.</p> <p>Also</p> <p>note description in band 30-30.56 below.</p>	
30.005-30.01	SPACE OPERATION (satellite identification) FIXED MOBILE SPACE RESEARCH		Note description in band 30-30.56 below	
30.01-37.5	FIXED MOBILE		<p>30-30.56 <i>Federal Usage: Land Mobile Radio.</i> Used by some Federal agencies for tactical and training operations. Other Federal agencies use this band for natural resource management and for wildlife telemetry.</p> <p>30.56-32 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p> <p><i>Federal Usage: Land Mobile Radio.</i> Used by some Federal agencies for tactical and training operations on a non-interference basis. Other Federal agencies use this band for natural resource management and for forest fire fighting</p> <p>32- 33</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p><u>Federal Usage: Land Mobile Radio.</u> This band is used primarily for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements. Other uses include land management and protection of natural resources.</p> <p>33– 34 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p> <p><u>Federal Usage: Land Mobile Radio.</u> Federal agencies are authorized to use this band as part of mutual aid response with local communities (fire, medical, etc.). Used by some Federal agencies for tactical and training operations on a non-interference basis.</p> <p>34– 35 <u>Federal Usage: Land Mobile Radio.</u> This band is used primarily for tactical and training operations by the Some Federal agencies for net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements. Extensive use of frequencies in this band is for natural resource management, park security/law enforcement at national parks, forests, wildlife refuge areas, etc. Some other uses of this are for law enforcement and facilities security management.</p> <p>35– 36 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of industrial/business licensees and the Public Mobile Services consisting of paging licensees.</p> <p><u>Federal Usage: Land Mobile Radio.</u> Used by some Federal</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>agencies for tactical and training operations on a non-interference basis and for experimental testing.</p> <p>36-37 <u>Federal Usage: Land Mobile Radio.</u> This band is used primarily for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements. Other uses include national park management, law enforcement, public safety nets, contingencies, natural resources management, and oil spill containment and cleanup operations.</p> <p><u>Private Sector Usage:</u> This band is used by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees in the Petroleum Radio Service for oil spill containment and cleanup operations.</p> <p>37-37..5 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p> <p><u>Federal Usage: Land Mobile Radio.</u> Some Federal agencies are authorized to use this band for mutual aid response to local communities. Other Federal agencies have some usage for tactical and training operations on a non-interference basis.</p>	

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Region 1	Region 2	Region 3		
37.5-38.25	<p>FIXED MOBILE Radio astronomy S5.149</p>		<p>37.5– 38 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p> <p><u>Federal & Private Sector Usage. Radio Astronomy.</u> Continuum observations are performed in this band that study electromagnetic radiation from the planet Jupiter and from the Sun.</p> <p>38– 38.25 <u>Federal Usage: Land Mobile Radio.</u> This band is used primarily for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements and experimental testing.</p> <p>Maritime Mobile. U.S. Coast Guard ship-to-ship and ship-to-shore communications.</p> <p><u>Federal & Private Sector Usage. Radio Astronomy.</u> Continuum observations are performed in this band to study electromagnetic radiation from the Sun and the planet Jupiter.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
38.25-39.986	FIXED MOBILE		<p>38.25– 39</p> <p><u>Federal Usage:</u> Land Mobile Radio. This band is extensively used for land mobile radio communications in the operation, protection, and maintenance of national parks, forests, wildlife refuge areas, etc. Frequencies in this band are also used for reservation programs, law enforcement, public safety operations, control of power generation transmission and water facilities, environmental data collection, fish management, and wildlife telemetry programs. However, this band is used primarily for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements.</p>	
39.986-40.02	FIXED MOBILE Space research		<p>39-40</p> <p><u>Private Sector Usage:</u> This band is used primarily for the Private Land Mobile Radio Services consisting of public safety licensees.</p> <p><u>Federal Usage:</u> Land Mobile Radio. Some Federal usage is authorized in this band for mutual aid response to local communities (fire, medical, oil spills, etc.).</p>	
40.02-40.98	FIXED MOBILE S5.150		<p>40.0– 40.66</p> <p><u>Federal Usage:</u> Land Mobile Radio. This band is extensively used for land mobile radio communications in the operation, protection, and maintenance of national parks, forests, wildlife refuge areas, etc. Frequencies in this band are also used for meteor-burst communications, reservation programs, public safety operations, environmental data collection, fish management, and wildlife telemetry programs. This band is used primarily for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
40.98-41.015	FIXED MOBILE Space research S5.160 S5.161			
41.015-44	FIXED MOBILE S5.160 S5.161		<p>40.66– 40.7 <u>Federal Usage:</u> Land Mobile Radio. This band is extensively used for land mobile radio communications in the operation, protection, and maintenance of national parks, forests, wildlife refuge areas, etc. Frequencies in this band are also used for fire suppression, reservation programs, environmental data collection, fish management, and wildlife telemetry programs. This band is used primarily for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements.</p> <p><u>Federal & Private Sector Usage.</u> ISM. The band 40.66-40.70 MHz (center frequency 40.68 MHz) is designated for industrial, scientific and medical (ISM) applications.</p> <p>40.7– 42 <u>Federal Usage:</u> Land Mobile Radio. This band is extensively used for land mobile radio communications in the operation, protection, and maintenance of national parks, forests, wildlife refuge areas, etc. Frequencies in this band are also used for meteor-burst communications, reservation programs, law enforcement, public safety operations, control of power generation/transmission and water facilities, environmental data collection, fish management, and wildlife telemetry programs. This band is used primarily for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements.</p> <p><u>Private Sector Usage:</u> This band is used by the Private Land Mobile</p>	

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Region 1	Region 2	Region 3		
			<p>Radio Services consisting of industrial/business licensees in the Petroleum Radio Service for oil spill containment and cleanup operations.</p> <p>42– 43.69 <u><i>Private Sector Usage:</i></u> This band is used primarily by the 1) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees; and 2) the Public Mobile Services consisting of paging and radiotelephone licensees.</p> <p><u><i>Federal Usage:</i></u> Land Mobile Radio Used by Federal agencies for mutual aid response with local communities. Used by some Federal agencies for tactical and training operations on a non-interference basis.</p>	
44-47	<p>FIXED MOBILE S5.162 S5.162A</p>		<p>43.69– 46.6 <u><i>Private Sector Usage:</i></u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p> <p><u><i>Federal Usage:</i></u> Land Mobile Radio. Primarily used by Federal agencies for mutual aid response with local communities. Used by some Federal agencies for tactical and training operations on a non-interference basis.</p> <p>46.6– 47 <u><i>Federal Usage:</i></u> Land Mobile Radio. Extensive use of this band is for contingency response to various national disasters. Others uses are for national resources management, law enforcement, tornado tracking, and various meteorological research support. This band is used for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements.</p>	

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Region 1	Region 2	Region 3		

47-75.2 MHz

47-68 BROADCASTING	47-50 FIXED MOBILE	47-50 FIXED MOBILE BROADCASTING	<p>47– 49.6 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p> <p><i>Federal Usage: Experimental.</i> Used for experimental research to observe and measure currents in harbor areas in support of vessel safety.</p> <p>Land Mobile Radio. Used by some Federal agencies for tactical and training operations on a non-interference basis.</p> <p>49.6– 50 <i>Federal Usage: Land Mobile Radio.</i> This band is used extensively to support contingencies or natural/ecological emergencies, some public safety requirements, MARS system, and air-quality measurements. This band is used primarily for tactical and training operations by some Federal agencies for combat net radio operations that provide command and control for combat, combat support, and combat service support units. Frequencies also used for air-to-ground communications for close air support requirements.</p> <p>Experimental. Research is performed in various regions of the atmosphere as well as experimental development of portable space orbital debris ground radars.</p>	
	50-54 AMATEUR S5.166 S5.167 S5.168 S5.170		<p><i>Private Sector Usage:</i> This band is used for Amateur Radio and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band.</p> <p><i>Federal Usage: Land Mobile Radio.</i> Some Federal agencies conduct tactical and training operations in this band on a non-interference basis.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
S5.162A S5.163 S5.164 S5.165 S5.169 S5.171	54-68 BROADCASTING Fixed Mobile S5.172	54-68 FIXED MOBILE BROADCASTING	54- 72 <u>Private Sector Usage:</u> TV broadcast, VHF channels 2-4. <u>Federal Usage:</u> Experimental. On a non-interference basis, used primarily for experimental testing and equipment checkout. Broadcasting. Some TV broadcast is performed in various Pacific island areas.	
68-74.8 FIXED MOBILE except aeronautical mobile	68-72 BROADCASTING Fixed Mobile S5.173	68-74.8 FIXED MOBILE	72- 73 <u>Private Sector Usage:</u> This band is used primarily by the 1) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees; and 2) Public Mobile Services consisting of paging and radiotelephone licensees. <u>Federal Usage:</u> Radio Astronomy. Observations of the cosmos is done in this band. Experimental. Numerous RDT&E testing as well as telecommand testing is performed in this band on a non-interference basis. 73- 74.6 <u>Federal & Private Sector Usage.</u> Radio Astronomy. Preferred for continuum observations. These observations help identify characteristics of stars, planets, and gases such as their elemental composition, temperature, etc. 74.6- 74.8 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. <u>Federal Usage:</u> Land Mobile Radio. Usage range from administrative land mobile nets to ground communications for	

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S5.149 S5.174 S5.175 S5.177 S5.179		S5.149 S5.176 S5.179	aircraft crews. Other usage ranges from portable-to-portable communications to low-power communications inside power plant facilities to the remote control of devices.	
	72-73 FIXED MOBILE			
	73-74.6 RADIO ASTRONOMY S5.178			
	74.6-74.8 FIXED MOBILE			
74.8-75.2	AERONAUTICAL RADIONAVIGATION S5.180 S5.181		<u>Federal & Private Sector Usage.</u> Aero-Radionavigation. Used for instrument land system (ILS) marker beacons.	

75.2-137.175 MHz

75.2-87.5 FIXED MOBILE except aeronautical mobile	75.2-75.4 FIXED MOBILE S5.179	75.2-75.4 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. <u>Federal Usage:</u> Land Mobile Radio. Usage cover wide range from public safety operations, low power operations, remote control of mechanical devices, runway light control systems, and to aircrew	
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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
S5.175 S5.179 S5.184 S5.187			ground communications.	
	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE	75.4- 76 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. <i>Federal Usage: Broadcasting.</i> Educational TV broadcasts on various Pacific islands. Experimental. Equipment testing is performed on an NIB basis.	
	76-88 BROADCASTING Fixed	S5.149 S5.182 S5.183 S5.188	76-88 <i>Private Sector Usage:</i> TV broadcast (channels 5-6) and auxiliary broadcasting. <i>Federal Usage: Broadcasting.</i> Government TV translator and educational TV broadcasts are licensed. Land Mobile Radio. Used primarily by some Federal agencies for tactical and training operations on a NIB basis.	
	Mobile	87-100 FIXED	88-108 <i>Private Sector Usage:</i> Radio broadcast (FM stations) and auxiliary broadcasting. <i>Federal Usage: Experimental.</i> Used by various Federal agencies for maintenance and calibration testing of aeronautical radio-- navigation equipment. Broadcasting. Some radio broadcasts are licensed for various Pacific islands.	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
87.5-100 BROADCASTING	S5.185	MOBILE BROADCASTING		
S5.190	88-100 BROADCASTING			
100-108	BROADCASTING S5.192 S5.194			
108-117.975	AERONAUTICAL RADIONAVIGATION S5.197		108-117.975 Aeronautical-Radionavigation. In the US as well as world-wide, ILS localizers share the 108-111.975 MHz portion of the 108-117.965 MHz band with VOR. In the US, Differential Global Position Systems (DGPS) stations may be authorized on a primary basis in the 108-111.975 MHz band.	
117.975-137	AERONAUTICAL MOBILE (R) S5.111 S5.198 S5.199 S5.200 S5.201 S5.202 S5.203 S5.203A S5.203B		117.975-121.4125 <u>Federal & Private Sector Usage.</u> ATC Communications. Primarily 25 kHz channel, AM voice, air-ground communications used by the FAA or other FAA authorized entities for the air traffic control of commercial, private, and recreational aviation. Band includes the VHF emergency search and rescue (and its guard-band) and airport utility and ELT testing. Some air traffic control is provided to Federal Government aircraft equipped with VHF air-ground radios. 121.4125- 121.5875 <u>Federal & Private Sector Usage.</u> ATC Communications. Primarily 25 kHz channel, AM voice, air-ground communications used by the FAA for the air traffic control of commercial, private, and recreational aviation. Band includes the VHF emergency search and rescue frequency, 121.5 MHz (and its guard-band), and airport utility and ELT testing. Some air traffic control is provided to Federal Government aircraft equipped with VHF air-ground radios. 121.5875-121.9375 <u>Federal & Private Sector Usage.</u> ATC Communications. Primarily	

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Region 1	Region 2	Region 3		
			<p>25 kHz channel, AM voice use. Band includes the VHF emergency search and rescue (and its guard-band).</p> <p>121.9375– 121.9625</p> <p><u>Private Sector Usage:</u> Air-ground communications for private aircraft stations.</p> <p><u>Federal Usage:</u> ATC Communications. Various Federal agencies are authorized to use this band for air-ground-air communications to aircraft.</p> <p>121.9625– 123.0875</p> <p><u>Private Sector Usage:</u> Used by private aircraft stations. Air carrier and private aircraft enroute flight advisory service provided by FAA. Unicom at airports with no control tower and aeronautical utility stations operate in this band. Also, this band supports private fixed-wing and rotary-wing aircraft air-to-air communications.</p> <p><u>Federal Usage:</u> ATC Communications. Primarily used by the FAA for air traffic control.</p> <p>VHF Communications. Other Federal agencies use is for air/air and air/ground/air communications supporting natural resource protection and management programs.</p> <p>123.0875–123.5875</p> <p><u>Federal & Private Sector Usage.</u> VHF Communications. Frequency 123.1 MHz for SAR scene-of action communications. - Other channels in this band support operations flight testing and aviation instructional gliders.</p> <p>123.5875– 128.8125</p> <p><u>Federal & Private Sector Usage.</u> ATC Communications. Primarily 25 kHz channel, AM voice, air-ground communications for the air traffic control of commercial, private, and recreational aviation. FSS</p>	

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Region 1	Region 2	Region 3		
			<p>Air Carrier Advisory is supported in this band as well as operational control (ARINC) functions. Some air traffic control is provided to Federal Government aircraft equipped with VHF air-ground radios.</p> <p>128.8125-132.0125 <u>Private Sector Usage:</u> Domestic VHF Service– aeronautical enroute stations where operational control communications is provided to aircraft along domestic air routes (communications include the safe, efficient, and economical operation of aircraft, such as fuel, weather, position reports, aircraft performance, and essential services and supplies).</p> <p><u>Federal Usage: Experimental.</u> Air/ground communications tests and equipment checkout.</p> <p>132.0125–136.00 <u>Federal & Private Sector Usage. ATC Communications.</u> Primarily 25 kHz channel, AM voice, air-ground communications for the air traffic control of commercial, private, and recreational aviation. This band also supports flight inspections and a channel is allocated for VHF common. Some air traffic control is provided to Federal Government aircraft equipped with VHF air-ground radios.</p> <p>136–137 <u>Private Sector Usage:</u> Frequencies in this band support ATC operations, domestic VHF (enroute stations serving domestic routes), and international VHF (enroute stations serving international routes). Some channels reserved for future unicom or AWOS systems.</p> <p><u>Federal Usage: ATC Communications.</u> Air traffic control is conducted in this band.</p> <p>WXD Satellite. Data acquisition from meteorological satellite programs is supported in this band.</p> <p>Space Research. NASA supports the Interplanetary Monitoring</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>Platform (IMP)-8 spacecraft by space tracking and telemetry operations in this band.</p> <p>Space Operations. Space tele-metering and space station operations are conducted in this band.</p> <p>Experimental. Used by various Federal agencies for equipment checkout and testing.</p>	
<p>137-137.025</p> <p>to-Earth)</p> <p>S5.208A S5.209</p>	<p>SPACE OPERATION (space-to-Earth)</p> <p>METEOROLOGICAL-SATELLITE (space-</p> <p>MOBILE-SATELLITE (space-to-Earth)</p> <p>SPACE RESEARCH (space-to-Earth)</p> <p>Fixed</p> <p>Mobile except aeronautical mobile (R)</p> <p>S5.204 S5.205 S5.206 S5.207 S5.208</p>		<p><i>Private Sector Usage:</i> Frequencies in this band support space applications (Little LEO, MSS downlink, NGSO) having global coverage.</p> <p><i>Federal Usage: Experimental.</i> Some equipment testing is done in this band.</p>	
<p>137.025-137.175</p> <p>to-Earth)</p> <p>S5.209</p>	<p>SPACE OPERATION (space-to-Earth)</p> <p>METEOROLOGICAL-SATELLITE (space-</p> <p>SPACE RESEARCH (space-to-Earth)</p> <p>Fixed</p> <p>Mobile-satellite (space-to-Earth) S5.208A</p> <p>Mobile except aeronautical mobile (R)</p> <p>S5.204 S5.205 S5.206 S5.207 S5.208</p>		<p><i>Private Sector Usage:</i> Frequencies in this band support space applications (Little LEO, MSS downlink, NGSO) having global coverage.</p> <p><i>Federal Usage: WXD SATELLITE.</i> METEOSAT-3, a temporary gap-filler for the GOES meteorological satellite project, operates a downlink during emergency situations.</p> <p>Experimental. Some equipment testing is performed by Federal agencies in this band.</p>	

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Region 1	Region 2	Region 3		

137.175-148 MHz

<p>137.175-137.825 to-Earth) S5.208A S5.209</p>	<p>SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space- MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) Fixed Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208</p>	<p><u>Federal Usage:</u> WXD Satellite. The Federal government uses this band primarily for meteorological satellite space stations: picture transmission to public and direct sounding broadcasts.</p> <p>Space Research. NASA supports the Interplanetary Monitoring Platform (IMP)-8 spacecraft by space tracking and telemetry operations in this band.</p> <p>Space Ops. Use is also made for a space tracking and a space operation space station.</p> <p><u>Private Sector Usage:</u> Frequencies in this band support space applications (Little LEO, MSS downlink, NGSO) having global coverage.</p>	
<p>137.825-138 to-Earth) S5.209</p>	<p>SPACE OPERATION (space-to-Earth) METEOROLOGICAL-SATELLITE (space- SPACE RESEARCH (space-to-Earth) Fixed Mobile-satellite (space-to-Earth) S5.208A Mobile except aeronautical mobile (R) S5.204 S5.205 S5.206 S5.207 S5.208</p>	<p><u>Federal Usage:</u> Space Research. NASA and the NSF conduct various space research activities in this band to include:</p> <p>NASA: The High Energy Transient Experiment (HETE) that measures and collects data on ultraviolet, X-ray, and gamma ray radiation.</p> <p>NASA: The Interplanetary Monitoring Platform (IMP)-8 spacecraft by space tracking and telemetry operations in this band.</p> <p>WXD Satellite. The NOAA-N weather satellite will begin using this band in Dec. 2003.</p> <p>NSF: Various scientific research projects in this band.</p> <p><u>Private Sector Usage:</u> Frequencies in this band support space applications (Little LEO, MSS downlink, NGSO) having global coverage.</p>	

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<p>138-143.6 AERONAUTICAL MOBILE (OR)</p> <p>S5.210 S5.211 S5.212 S5.214</p>	<p>138-143.6 FIXED MOBILE RADIOLOCATION</p> <p>Space research (space-to-Earth)</p>	<p>138-143.6 FIXED MOBILE Space research (space-to-Earth)</p> <p>S5.207 S5.213</p>	<p>138– 144 <i>Federal Usage: Land Mobile Radio.</i> This band is primarily used by some Federal agencies for non-tactical land mobile radio networks that support agencies’ infrastructure functions (i.e., firecrash, security, ambulance, fuels, disaster preparedness, commanders net, transportation, etc.) at and in the vicinity of agency facilities and numerous training areas and national test ranges. Civil emergency communications and the Military Affiliate Radio System (MARS) are also supported in this band. The US Coast Guard also operates auxiliary nets such as for boating safety, search and rescue operations, etc.</p> <p>Space Ops. NASA uses frequencies in this band to support the International Space Station (ISS) VHF Voice Communications Link (IVVCL) primarily when docking with space stations.</p>	
<p>143.6-143.65 AERONAUTICAL MOBILE (OR) SPACE RESEARCH (space-to-Earth)</p> <p>S5.211 S5.212 S5.214</p>	<p>143.6-143.65 FIXED MOBILE RADIOLOCATION SPACE RESEARCH (space-to-Earth)</p>	<p>143.6-143.65 FIXED MOBILE SPACE RESEARCH (space-to-Earth)</p> <p>S5.207 S5.213</p>		

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
143.65-144 AERONAUTICAL MOBILE (OR) S5.210 S5.211 S5.212 S5.214	143.65-144 FIXED MOBILE RADIOLOCATION Space research (space-to-Earth)	143.65-144 FIXED MOBILE Space research (space-to-Earth) S5.207 S5.213		
144-146 AMATEUR S5.120 AMATEUR-SATELLITE S5.216			<i>Private Sector Usage:</i> Most popular amateur VHF band where much FM repeater activity occurs and is available to all licensed amateurs except Novices. Band plan has two sub-bands allowing use of amateur-satellite space stations for uplinks and downlinks. Amateurs provide emergency, public-service communications in this band.	
146-148 FIXED MOBILE except aeronautical mobile (R)	146-148 AMATEUR S5.217	146-148 AMATEUR FIXED MOBILE S5.217	<i>Private Sector Usage:</i> Most popular amateur VHF band where much FM repeater activity occurs and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. <i>Federal Usage: Experimental.</i> Some Federal agencies are authorized to have temporary assignments in this band that do not conform to the National Table of Frequency Allocations.	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
<p>148-149.9</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile (R)</p> <p>MOBILE-SATELLITE (Earth-to-space) S5.209</p> <p>S5.218 S5.219 S5.221</p>	<p>148-149.9</p> <p>FIXED</p> <p>MOBILE</p> <p>MOBILE-SATELLITE (Earth-to-space) S5.209</p> <p>S5.218 S5.219 S5.221</p>		<p><u>Federal Usage:</u> Land Mobile Radio. Major users of this band are by some Federal agencies for non-tactical land mobile radio networks that support agencies' infrastructure functions (i.e., firecrash, security, ambulance, fuels, disaster preparedness, commanders net, transportation, etc.) at and in the vicinity of agencies' facilities and numerous training areas and national test ranges. The Interior Department's fish management program is supported in this band with USA-wide channels. This band is essential to the support of the Civil Air Patrol and the USCG boating safety and search and rescue operations.</p> <p>Satellite Uplinks. Satellite uplink operations are supported in this band by NASA, DOE, NSF, DOS. Most notable are the METEOSAT-3, P-SAT, IMP-8, Advanced Technology Satellite (ATS 1 and 3), and the NOAA 14-satellites.</p> <p><u>Private Sector Usage:</u> Frequencies in this band support space applications (Little LEO, MSS uplink, NGSO) having global coverage. Further, terrestrial usage is by Private Land Mobile Services licensees.</p>	
<p>149.9-150.05</p> <p>S5.209 S5.224A</p> <p>S5.224B</p>	<p>MOBILE-SATELLITE (Earth-to-space)</p> <p>RADIONAVIGATION-SATELLITE</p> <p>S5.220 S5.222 S5.223</p>		<p><u>Private Sector Usage:</u> Frequencies in this band support space applications (Little LEO, MSS uplink, NGSO) having global coverage.</p> <p><u>Federal Usage:</u> Mobile Satellite. Federal Government use of this band for mobile-satellite service is limited by US Footnote 319 to Earth stations operating with non-government satellites.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
<p>150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149</p>	<p>150.05-156.7625 FIXED MOBILE</p>	<p>150.05-150.8 <i>Federal Usage: Land Mobile Radio.</i> Major users of this band are by some Federal agencies for non-tactical land mobile radio networks that support agencies' infrastructure functions (i.e., firecrash, security, ambulance, fuels, disaster preparedness, commanders net, transportation, etc.). Other Federal use includes functions supporting national reservation management. <i>Private Sector Usage:</i> This band is used primarily for the Private Land Mobile Radio Services consisting of public safety licensees (authorized for government/non-government operations in medical radio communications systems, US216).</p> <p>150.8- 152 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. <i>Federal Usage: Land Mobile Radio.</i> Some Federal agency usage is authorized for mutual aid response (fire fighting, forest fire fighting, medical, etc.) with local communities. Also used for protection and management of natural resources and wildlife.</p> <p>152-152.255 <i>Private Sector Usage:</i> This band is used primarily by the 1) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees; and 2) the Public Mobile Services consisting of paging and radiotelephone, rural radiotelephone, and the basic exchange telephone radio service licensees.</p>		
<p>153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological Aids</p>				

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p><u>Federal Usage:</u> Land Mobile Radio. Some Federal agencies' usage in this band is authorized for cooperative studies in the protection and management of natural resources. Some frequencies in this band are authorized for government/non-government medical radio communications systems, US216.</p> <p>152.255– 152.495 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Service consisting of industrial/business licensees.</p> <p>152.495– 152.855 <u>Private Sector Usage:</u> This band is used primarily by the 1) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees; and 2) the Public Mobile Services consisting of paging and radiotelephone, rural radiotelephone, and the basic exchange telephone radio service licensees.</p> <p><u>Federal Usage:</u> Experimental. Some Federal agencies have temporary assignments in this band that do not conform to the National Table of Frequency Allocations.</p>	
<p>154-156.7625 FIXED MOBILE except aeronautical mobile (R)</p> <p>S5.226 S5.227</p>			<p>152.855– 154 <u>Private Sector Usage:</u> This band is used primarily by the 1) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees; and 2) the Auxiliary Broadcasting Service for electronic news gathering licensees.</p> <p><u>Federal Usage:</u> Land Mobile Radio. Various Federal agencies are authorized to use this band for mutual aid response to local communities (fire fighting, forest fire fighting, medical, hazardous material incidents, etc.).</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>154–156.2475</p> <p><u>Private Sector Usage:</u> This band is used by the a) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees; and b) Mobile Services for 1) private communications purposes for port operations and commercial communications; and 2) radio-determination operations for offshore radiolocation and associated tele-command operations.</p> <p><u>Federal Usage:</u> Land Mobile Radio. Various Federal agencies are authorized to use this band for mutual aid response to local communities (fire fighting, forest fire fighting, medical, etc.).</p> <p>156.2475–156.308</p> <p><u>Private Sector:</u> This band is used by the Maritime Mobile Services for port operations (intership/ship-to-coast), safety (intership).</p> <p><u>Federal Usage:</u> Maritime Mobile. Intership use of 156.3 MHz and vessel traffic services under the control of the USCG on 156.25 MHz</p> <p>156.308–156.542</p> <p><u>Private Sector:</u> This band is used by the Maritime Mobile Services for commercial communications (intership/ship-to-coast), port operations (intership/ship-to-coast), vessel traffic system (VTS), non-commercial (intership/ship-to-coast), distress and safety digital selective calling (DSC).</p> <p><u>Federal Usage:</u> Maritime Mobile. On 156.375 MHz, government vessel bridge-to-bridge communications and government coast stations for navigational communications.</p> <p>156.542– 156.558</p> <p><u>Private Sector:</u> This band is used by the Maritime Mobile Services for commercial communications (intership/ship-to-coast) and vessel traffic system (VTS).</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p><u>Federal Usage:</u> Maritime Mobile. Vessel traffic services under the control of the USCG on 156.55 MHz,</p> <p>156.558– 156.592</p> <p><u>Private Sector:</u> This band is used by the Maritime Mobile Services for non-commercial communications (intership/ship-to-coast).</p> <p>156.592– 156.608</p> <p><u>Private Sector:</u> This band is used by the Maritime Mobile Services for port operations (intership/ship-to-coast) and for the vessel traffic system (VTS).</p> <p><u>Federal Usage:</u> Maritime Mobile. On 156.6 MHz, port operations by government coast and ship stations. Vessel traffic services under the control of the USCG on 156.6 MHz.</p> <p>156.608– 156.692</p> <p><u>Private Sector:</u> This band is used by the Maritime Mobile Services for bridge-to-bridge communications, navigation (1 watt), non-commercial communications (intership), port operations communications (intership/ship-to-coast).</p> <p><u>Federal Usage:</u> Maritime Mobile. On 156.65 MHz, government vessel bridge-to-bridge communications and government coast stations for navigational communications.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>156.692– 156.708</p> <p><i>Private Sector:</i> This band is used by the Maritime Mobile Services for port operations (intership/ship-to-coast) and vessel traffic system (VTS).</p> <p><i>Federal Usage: Maritime Mobile.</i> On 156.7 MHz, port operations by government coast and ship stations. Vessel traffic services under the control of the USCG on 156.7 MHz</p> <p>156.708– 156.742</p> <p><i>Private Sector:</i> This band is used by the Maritime Mobile Services for port operations (intership/ship-to-coast).</p> <p>156.742– 156.758</p> <p><i>Private Sector Usage:</i> This band is used by the Maritime Mobile Services for receive-only environmental communications (coast to ship only).</p> <p><i>Federal Usage: Maritime Mobile.</i> On 156.75 MHz, government coast and ship stations are authorized use in support of marine environmental protection operations.</p> <p>156.758– 156.7625</p> <p><i>Private Sector Usage:</i> This band is used by the Maritime Mobile Services licensees.</p>	
<p>154-156.7625</p> <p>FIXED</p> <p>MOBILE except aeronautical mobile (R)</p> <p>S5.226 S5.227</p>	S5.225 S5.226 S5.227			

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
156.7625-156.8375	MARITIME MOBILE (distress and calling) S5.111 S5.226		<u>Federal & Private Sector Usage.</u> Maritime Mobile. Frequency 156.8 MHz is for international distress, safety, and call and reply.	
156.8375-174 FIXED MOBILE except aeronautical mobile	156.8375-174 FIXED MOBILE		<p>156.8375– 156.992 <u>Private Sector Usage:</u> This band is used by the Maritime Mobile Services for state government controlled communications (1 watt), port operations (intership), and non-commercial communications (intershipship-to-coast).</p> <p>156.992– 157.008 <u>Private Sector Usage:</u> This band is used by the Maritime Mobile Services for intership communications.</p> <p><u>Federal Usage:</u> Maritime Mobile. On 157.0 MHz, port operations by government coast and ship stations is authorized.</p> <p>157.008– 157.0375 <u>Private Sector Usage:</u> This band is used by the Maritime Mobile Services for commercial communications (intership/ship-to-coast).</p> <p>157.0375–157.1875 <u>Federal Usage:</u> USCG. Primary use of this band is for U.S. Coast Guard ship-shore radio station communications for safety and distress response functions, marine safety broadcasts, and command and control of USCG vessels, as well as communications with the general maritime community.</p> <p>NOAA. The Commerce Department/NOAA is a large user of this band for law enforcement matters, fishery research, oceanographic/fisheries activities, geodetic surveys, hydrographic programs, hydrologic surveys, marine pollution studies, and support of oil clean-ups.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>EPA. The EPA uses this band for ship-ship and ship-shore communications for environmental monitoring and assessment programs.</p> <p><u>Private Sector Usage:</u> This band is used by the Maritime Mobile Services for private communications purposes for liaison with the USCG. Some public safety radio service operations have been grandfathered and continue to operate (US 266).</p> <p>157.1875-157.45 <u>Private Sector Usage:</u> This band is used by the Maritime Mobile Services for public coast stations offering common carrier services to ship stations. Channels in this band are ship transmit (ship-to-coast). Some public safety radio service operations have been grandfathered and continue to operate (US 266).</p> <p><u>Federal Usage: Maritime Mobile.</u> Various Federal agencies are authorized to use this band for marine communications (vessel traffic control, intership, ship-to-coast, port operations, harbor operations, etc.).</p> <p>Research. Other uses include environmental monitoring and research, scientific research, etc. Land Mobile Radio. Mutual aid response to local communities (fire fighting, public safety, etc.) is also performed in this band.</p> <p>157.45– 157.755 <u>Private Sector Usage:</u> This band is used primarily by the:</p> <ul style="list-style-type: none"> a) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. b) Public Mobile Services consisting of paging and rural radiotelephone licensees. c) Maritime Mobile Services for offshore radiolocation and associated tele-command operations. 	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>157.755– 158.115 <u>Private Sector Usage:</u> This band is used primarily by the:</p> <ul style="list-style-type: none"> a) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. b) Public Mobile Services consisting of paging and rural radiotelephone licensees. c) Maritime Mobile Services for offshore radiolocation and associated tele-command operations. <p><u>Federal Usage: Land Mobile Radio.</u> Various Federal agencies are authorized to use this band in response to contingency support requirements and is limited to non-government public correspondence.</p> <p>158.115– 161.575 <u>Private Sector Usage:</u> This band is used primarily by the:</p> <ul style="list-style-type: none"> a) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. b) Public Mobile Services consisting of paging and rural radiotelephone licensees. c) Maritime Mobile Services for offshore radiolocation and associated tele-command operations. <p><u>Federal Usage: Land Mobile Radio.</u> Various Federal agencies are authorized to use this band for mutual aid response with local communities (fire fighting, forest fire fighting, natural resource protection, etc.)</p> <p>161.575– 161.592 <u>Private Sector Usage:</u> This band is used by the Maritime Mobile Services for public coast stations offering common carrier services to coast stations. Channels in this band are coast transmit.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>161.592– 161.608 <u><i>Private Sector Usage:</i></u> This band is used by the Maritime Mobile Services for public coast stations offering common carrier services to coast stations. Channels in this band are coast transmit. <u><i>Federal Usage:</i></u> Maritime Mobile. Used by various Federal agencies in support of port and harbor operations, inland waterway patrols, as well as for the protection and management of marine natural resources.</p> <p>161.608- 161.625 <u><i>Private Sector Usage:</i></u> This band is used by the Maritime Mobile Services for public coast stations offering common carrier services to coast stations. Channels in this band are coast transmit.</p> <p>161.625– 161.775 <u><i>Private Sector Usage:</i></u> This band is used primarily by the Auxiliary Broadcasting Service for electronic news gathering licensees. This band is also used for shipboard Automatic Identification System (AIS) transponders.</p> <p>161.775– 162.0125 <u><i>Private Sector Usage:</i></u> This band is used by the Maritime Mobile Services for public coast stations offering common carrier services to coast stations. Channels in this band are coast transmit. This band is also used for shipboard Automatic Identification System (AIS) transponders. <u><i>Federal Usage:</i></u> Land Mobile Radio. Various Federal agencies are authorized to use frequencies in this band in support of mutual aid response and for equipment testing. This band is also used for shipboard Automatic Identification System (AIS) transponders.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>162.0125– 162.0375 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. This band is also used for shipboard Automatic Identification System (AIS) transponders. <u>Private Sector Usage:</u> This band is used by the Maritime Mobile Services for public correspondence along U.S.-Canada Border. On an NIB basis, low-power wireless microphones of the Private Land Mobile Radio Services are authorized.</p> <p>162.0375– 163.2375 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>163.2375– 163.2625 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u>Private Sector Usage:</u> The Private Land Mobile Radio Services licensees are authorized for government/non-government operations in medical radio communications systems.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>163.2625– 166.2375</p> <p><u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>166.2375– 166.2625</p> <p><u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p><u>Private Sector Usage:</u> Some public safety licensees of the Private Land Mobile Radio Services are authorized to use frequencies in this band at specified locations and are NIB to government stations.</p> <p>166.2625– 169.4125</p> <p><u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>169.4125– 169.5375 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u><i>Private Sector Usage:</i></u> Industrial/business licensees of the Land Mobile Radio Service are authorized to use some frequencies for hydro or weather data operations.</p> <p>169.5375– 170.1375 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>170.1375– 170.1625 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u><i>Private Sector Usage:</i></u> Some public safety licensees of the Private Land Mobile Radio Services are authorized to use frequencies in this band at specified locations and are NIB to government stations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>170.1625– 170.2125 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations</p> <p>170.2125– 170.3375 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u>Private Sector Usage:</u> Industrial/business licensees of the Land Mobile Radio Service are authorized to use some frequencies for hydro or weather data operations.</p> <p>170.3375– 170.4125 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>170.4125– 170.4375 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u><i>Private Sector Usage:</i></u> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations.</p> <p>170.4375– 170.4625 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>170.4625– 170.4875 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u><i>Private Sector Usage:</i></u> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>170.4875– 170.5625 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air; safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations</p> <p>170.5625– 170.5875 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air; safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u><i>Private Sector Usage:</i></u> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations.</p> <p>170.5875– 171.0125 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air; safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>171.0125– 171.1375</p> <p><i>Federal Usage: Land Mobile Radio.</i> This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p><i>Private Sector Usage:</i> Industrial/business licensees of the Land Mobile Radio Service are authorized to use some frequencies for hydro or weather data operations.</p> <p>171.1375– 171.4125</p> <p><i>Federal Usage: Land Mobile Radio.</i> This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>171.4125– 171.4375</p> <p><i>Federal Usage: Land Mobile Radio.</i> This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p><i>Private Sector Usage:</i> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>171.4375– 171.4625 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air; safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations</p> <p>171.4625– 171.4875 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air; safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u><i>Private Sector Usage:</i></u> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations.</p> <p>171.4875– 171.5625 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air; safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>171.5625– 171.5875 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p><u>Private Sector Usage:</u> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations</p> <p>171.5875– 171.8125 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>171.8125– 171.9375 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p><u>Private Sector Usage:</u> Industrial/business licensees of the Land Mobile Radio Service are authorized to use some frequencies for hydro or weather data operations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>171.9375– 172.2125 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>172.2125– 172.2375 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u>Private Sector Usage:</u> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations.</p> <p>172.2375– 172.2625 <u>Federal Usage:</u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
S5.226 S5.229	S5.226 S5.230 S5.231 S5.232		<p>172.2625– 172.2875 <u>Federal Usage: Land Mobile Radio.</u> This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u>Private Sector Usage:</u> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations.</p> <p>172.2875– 172.3625 <u>Federal Usage: Land Mobile Radio.</u> This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>172.3625–172.3875 <u>Federal Usage: Land Mobile Radio.</u> This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u>Private Sector Usage:</u> Certain frequencies are authorized for non-Federal forest firefighting agencies and are on a NIB to government stations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>172.3875– 173.0625 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>173.0625– 173.0875 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations. <u><i>Private Sector Usage:</i></u> Public safety licensees of the Private Land Mobile Radio Services are authorized to use 173.075 MHz for stolen vehicle recovery systems (US312).</p> <p>173.0875– 173.2 <u><i>Federal Usage:</i></u> Land Mobile Radio. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p> <p>173.2– 173.4 <u><i>Private Sector Usage:</i></u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees for remote control and telemetry operations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p><u>Federal Usage:</u> Land Mobile Radio Various Federal agencies are authorized to use frequencies in this band for mutual aid response (forest fire fighting, etc.) to local communities and broadcast range safety warnings</p> <p>173.4– 174</p> <p><u>Federal Usage:</u> Land Mobile Radio. This band is paired with the 162.0125–173.2 MHz band above. This is the primary band for many Federal agencies’ fixed and land mobile operations essential to maintain Federal government’s infrastructure-related functions. It is used extensively throughout the United States in support of safety in the air: safety at sea; protection of life, property, and national resources; research; and promotion of efficiency and economy of Federal government operations.</p>	
<p>174-223 BROADCASTING</p>	<p>174-216 BROADCASTING Fixed Mobile S5.234</p>	<p>174-223 FIXED MOBILE BROADCASTING</p>	<p>174– 216</p> <p><u>Private Sector Usage:</u> TV broadcast, channels 7-13. Auxiliary broadcasting of low power TV/Translators. Unlicensed biomedical telemetry devices are authorized (147-216 MHz).</p> <p><u>Federal Usage:</u> Broadcasting. Various Federal agencies are authorized to use frequencies in this band to broadcast TV programming to Federal employees stationed at isolated U.S. sites and broadcast educational TV to certain Pacific Island communities, monitor wildlife telemetry, and use in the protection and management of natural resources.</p> <p>216– 220</p> <p><u>Federal Usage:</u> Maritime. Naval units use this band for ship sensor and navigational accuracy checks.</p> <p>Telemetry. Numerous Federal agencies conduct research using telemetry links for various test projects such as high speed trains, vehicles on test tracks, convective storm data telemetry, naval telecommand, NASA downlink telemetry, and wildlife management telemetry.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>Land Mobile Radio. Some Federal agencies uses this band for communications training, airborne beacon transmitter locator, test range timing systems, hazardous material suits (portable-to-portable) communications for air bases. USA-wide digital telemetry use for nuclear treaty verification.</p> <p>Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p> <p><u>Private Sector Usage:</u> Frequencies in this band are used for the following services:</p> <ul style="list-style-type: none"> a) Maritime Mobile Services for automated maritime telecommunications system (seas and Mississippi River). b) Private Land Mobile Radio Services for Industrial/Business licensees (telemetry operations, secondary to Federal government). c) Amateur Service for digital message forwarding systems only. <p>220– 222</p> <p><u>Private Sector Usage:</u> This band is used primarily for the Private Land Mobile Radio Service licensees.</p> <p><u>Federal Usage:</u> Land Mobile Radio. Some Federal agencies use frequencies in this band for tactical and training communications on national and agency test ranges. Nationwide channels are used for various Department of Transportation support functions.</p> <p>Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>222-223 <u><i>Private Sector Usage:</i></u> This band is used for Amateur Radio and is available to all licensed amateurs. Amateurs provide emergency, public-service communications in this band.</p> <p><u><i>Federal Usage: Radiobeacons.</i></u> NASA uses this band for radiobeacons on missiles to aid in payload recovery.</p> <p>Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p> <p>Experimental. Some agencies conduct research, developmental, test and evaluation testing as well as tactical and training missions in this band while others have nationwide assignments for equipment testing.</p>	
	<p>216-220 FIXED MARITIME MOBILE Radiolocation S5.241 S5.242</p>		<p>223– 225 <u><i>Private Sector Usage:</i></u> This band is used for Amateur Radio and is available to all licensed amateurs. Amateurs provide emergency, public-service communications in this band.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
S5.235 S5.237 S5.243		S5.233 S5.238 S5.240 S5.245	<p><u>Federal Usage: Radiobeacons.</u> NASA uses this band for radiobeacons on missiles to aid in payload recovery. Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p> <p>Experimental. Some Federal agencies conduct research, developmental, test and evaluation testing as well as tactical and training missions in this band. Additionally, some Federal agencies have nationwide assignments for equipment testing.</p> <p>225– 235</p> <p><u>Federal Usage:</u> Agency Communications. Primarily used for Air/Ground and Air/Air communications for the control of Federal Government aircraft. Further, some Federal agencies conduct extensive fixed, multi-channel radio relay training operations in this band. Major training center instrumentation systems for data links connecting battle simulation systems on participants’ platforms (airborne, shipborne, or surface) to central data processing facilities. Some Federal agencies also use this band to perform air and sea rescues. Rocket testing and other programs’ telemetry systems also operate in this band.</p> <p>FAA Usage. The FAA provides ATC communications to Federal Government aircraft on selected frequencies in this band.</p> <p>Test Ban Treaty. Checkout of equipment used to remotely monitor declared nuclear facilities and identifying/characterizing undeclared and clandestine nuclear facilities in support of the limited test ban treaty.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		

220-335.4 MHz

	220-225			
223-230 BROADCASTING Fixed Mobile S5.243 S5.246 S5.247	AMATEUR FIXED MOBILE Radiolocation S5.241	223-230 FIXED MOBILE BROADCASTING AERONAUTICAL RADIONAVIGATION Radiolocation S5.250		
	225-235 FIXED MOBILE			
230-235 FIXED MOBILE S5.247 S5.251 S5.252		230-235 FIXED MOBILE AERONAUTICAL RADIONAVIGATION S5.250		

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
235-267	<p>FIXED MOBILE S5.111 S5.199 S5.252 S5.254 S5.256</p>		<p><u>Federal Usage: Agency Communications.</u> Primarily used for Air/Ground and Air/Air communications for the control of Federal Government aircraft. Further, some Federal agencies conduct extensive fixed, multi-channel radio relay training ops in this band. Some Federal agencies also use this band to perform air and sea rescues.</p> <p>SATCOM. Tactical and strategic satellite communications providing command and control connectivity between ground, air, and surface/subsurface mobile platforms, are conducted in this band.</p> <p>FAA Usage. The FAA provides ATC communications to Federal Government aircraft on selected frequencies in this band.</p> <p>Seismic Ops. Frequencies in this band are used in support of seismic data collection and transmission.</p>	
267-272	<p>FIXED MOBILE Space operation (space-to-Earth) S5.254 S5.257</p>		<p>267– 322</p> <p><u>Federal Usage: Agency Communications.</u> Primarily used for Air/Ground and Air/Air communications for the control of Federal Government aircraft. Further, Some Federal agencies conduct extensive fixed, multi-channel radio relay training ops in this band. Some Federal agencies also use this band to perform air and sea rescues.</p> <p>SATCOM. Tactical and strategic satellite communications providing command and control connectivity between ground, air, and surface/subsurface mobile platforms, are conducted in this band.</p> <p>FAA Usage. The FAA provides ATC communications to Federal Government aircraft on selected frequencies in this band.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
272-273	SPACE OPERATION (space-to-Earth) FIXED MOBILE S5.254			
273-312	FIXED MOBILE S5.254			
312-315 S5.255	FIXED MOBILE Mobile-satellite (Earth-to-space) S5.254			
315-322	FIXED MOBILE S5.254			
322-328.6	FIXED MOBILE RADIO ASTRONOMY S5.149		<i>Federal Usage: Agency Communications.</i> Primarily used for Air/Ground and Air/Air communications for the control of Federal Government aircraft. Further, Some Federal agencies conduct extensive fixed, multi-channel radio relay training ops in this band. <i>FAA Usage.</i> The FAA provides ATC communications to Federal Government aircraft on selected frequencies in this band.	
328.6-335.4	AERONAUTICAL RADIONAVIGATION S5.258 S5.259		<i>Aero-Radionav.</i> In the United States, as well as worldwide, this band is allocated for aeronautical radionavigation where its use is for the instrument landing system's (ILS) glideslope.	

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Region 1	Region 2	Region 3		

335.4-410 MHz

<p>335.4-387</p>	<p>FIXED MOBILE S5.254</p>	<p>335.4– 399.9</p> <p><i>Federal Usage: Agency Communications.</i> Primarily used for Air/Ground and Air/Air communications for the control of Federal Government aircraft. Further, Some Federal agencies conduct extensive fixed, multi-channel radio relay training ops in this band. Some Federal agencies also use this band to perform air and sea rescues.</p> <p>SATCOM. Tactical and strategic satellite communications providing command and control connectivity between ground, air, and surface/subsurface mobile platforms, are conducted in this band.</p> <p>FAA Usage. The FAA provides ATC communications to Federal Government aircraft on selected frequencies in this band.</p>	
<p>387-390</p>	<p>FIXED MOBILE Mobile-satellite (space-to-Earth) S5.208A S5.254 S5.255</p>	<p>FAA Usage. The FAA provides ATC communications to Federal Government aircraft on selected frequencies in this band.</p>	
<p>390-399.9</p>	<p>FIXED MOBILE S5.254</p>	<p>FAA Usage. The FAA provides ATC communications to Federal Government aircraft on selected frequencies in this band.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
399.9-400.05 S5.209 S5.224A S5.224B S5.260	MOBILE-SATELLITE (Earth-to-space) RADIONAVIGATION-SATELLITE S5.222 S5.220		<p><u>Federal Usage:</u> Mobile Satellite. Government usage in this band is in the mobile-satellite service where government Earth stations operate with non-government mobile satellites (per US319).</p> <p><u>Pre-Launch Tests.</u> Usage is also for pre-launch checks for missile and satellite equipment.</p> <p><u>Private Sector Usage:</u> Frequencies in this band support space applications (Little LEO, MSS downlink, NGSO) having global coverage.</p>	
400.05-400.15	STANDARD FREQUENCY AND TIME SIGNAL- SATELLITE (400.1 MHz) S5.261 S5.262		<p><u>Federal Usage:</u> WXD Data Collection. Meteorological data collection and radiosonde operations are performed in this band. Doppler orbitography and radiopositioning integrated by satellite system operates in this band.</p>	
400.15-401 to-Earth) S5.208A S5.209	METEOROLOGICAL AIDS METEOROLOGICAL-SATELLITE (space- to-Earth) MOBILE-SATELLITE (space-to-Earth) SPACE RESEARCH (space-to-Earth) S5.263 Space operation (space-to-Earth) S5.262 S5.264		<p><u>Federal Usage:</u> WXD Data Collection. Meteorological data collection and radiosonde operations are performed in this band. Doppler orbitography and radiopositioning integrated by satellite system operates in this band.</p> <p><u>NASA Downlink.</u> NASA operates a downlink in support of the SIMPLESAT Satellite System. NASA also uses this band for proximity video communications on the Space Shuttle and on the International Space Station.</p>	
401-402 (Earth-to-space) to-space)	METEOROLOGICAL AIDS SPACE OPERATION (space-to-Earth) EARTH EXPLORATION-SATELLITE METEOROLOGICAL-SATELLITE (Earth- to-space) Fixed Mobile except aeronautical mobile		<p><u>Federal Usage:</u> WXD Satellite. Numerous meteorological-satellite earth stations affiliated with the GOES system operate in this band.</p> <p><u>WXD Data Collection.</u> Meteorological data collection and radiosonde operations are performed in this band. Doppler orbitography and radiopositioning integrated by satellite system operates in this band.</p> <p><u>Private Sector Usage:</u> Frequencies in this band support space applications (Remote sensing, space research up and downlinks, NGSO) having global coverage.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
402-403 (Earth-to-space) to-space)	METEOROLOGICAL AIDS EARTH EXPLORATION-SATELLITE METEOROLOGICAL-SATELLITE (Earth- Fixed Mobile except aeronautical mobile		<p><u>Federal Usage:</u> WXD Data Collection. Various Federal agencies operate radiosondes in support of collecting meteorological data for weather forecasting.</p> <p>Earth Stations. Numerous Federal agencies operate meteorological-satellite earth stations and space research earth stations.</p> <p>NASA Uplinks. NASA operates a uplink in support of the SIMPLESAT Satellite System.</p> <p><u>Private Sector Usage:</u> Frequencies in this band support space applications (Remote sensing, space research up and downlinks, NGSO) having global coverage.</p>	
403-406	METEOROLOGICAL AIDS Fixed Mobile except aeronautical mobile		<p><u>Federal Usage:</u> WXD Data Collection. Numerous Federal agencies operate radiosondes, rocketsondes, and dropsonde flights in this band.</p> <p>Land Mobile Radio. Some Federal agencies conduct tactical and training operations in this band on a secondary basis.</p>	
406-406.1	MOBILE-SATELLITE (Earth-to-space) S5.266 S5.267		<p>SARSAT/COPAS. Primary frequency used by the NOAA search and rescue satellites (SARSAT) for reception of Emergency Position-Indicating Radio Beacon (EPIRB) transmitters owned by Federal and civilian entities. The SARSAT retransmits emergency transmitter signals on 1544.5 MHz to surface stations.</p>	
406.1-410	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY S5.149		<p>406.1– 406.1125</p> <p><u>Federal Usage:</u> Trunked & Land Mobile Radio Systems. This band supports Federal Government trunked radio systems. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6).</p> <p><u>Federal & Private Sector Usage.</u> Radio Astronomy. One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>406.1125– 406.1375 <u>Federal Usage: Data Collection.</u> Various Federal agencies use this band for the automatic fixed station transmission of hydrologic or meteorological data (or both). Trunked & Land Mobile Radio Systems. This band supports Federal Government trunked radio systems. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6). <u>Private Sector Usage:</u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones. <u>Federal & Private Sector Usage. Radio Astronomy.</u> One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations.</p> <p>406.1375– 406.1625 <u>Federal & Private Sector Usage. Radio Astronomy.</u> One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations. <u>Federal Usage: Land Mobile Radio.</u> Some Federal agencies conduct tactical and training operations in this band on a secondary basis. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6).</p> <p>406.1625– 406.1875 <u>Federal Usage: Data Collection.</u> Various Federal agencies use this band for the automatic fixed station transmission of hydrologic or meteorological data (or both). Trunked & Land Mobile Radio Systems. This band supports Federal Government trunked radio systems. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6).</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p><u>Private Sector Usage:</u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones.</p> <p><u>Federal & Private Sector Usage. Radio Astronomy.</u> One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations.</p> <p>406.1875– 409.6625</p> <p><u>Federal Usage: Land Mobile Radio & Trunked Systems.</u> This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations. This band supports Federal Government trunked radio systems. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6).</p> <p><u>Federal & Private Sector Usage. Radio Astronomy.</u> One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations.</p> <p>409.6625– 409.6875</p> <p><u>Federal Usage: Land Mobile Radio & Trunked Systems.</u> This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations. This band supports Federal Government trunked radio systems. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6).</p> <p><u>Private Sector Usage:</u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p><u>Federal & Private Sector Usage.</u> Radio Astronomy. One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations.</p> <p>409.6875– 409.7125</p> <p><u>Federal Usage:</u> Land Mobile Radio & Trunked Systems. This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations. This band supports Federal Government trunked radio systems. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6).</p> <p><u>Federal & Private Sector Usage.</u> Radio Astronomy. One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations.</p> <p>409.7125– 409.7375</p> <p><u>Federal Usage:</u> Data Collection. Various Federal agencies use this band for the automatic fixed station transmission of hydrologic or meteorological data (or both).</p> <p>Trunked & Land Mobile Radio Systems. This band supports Federal Government trunked radio systems. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6).</p> <p><u>Private Sector Usage:</u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones.</p> <p><u>Federal & Private Sector Usage.</u> Radio Astronomy. One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>409.7325– 410</p> <p><u>Federal Usage:</u> Land Mobile Radio & Trunked Systems. This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations. Some Federal agencies conduct tactical fixed and mobile operations in this band on a secondary basis (G6). This band supports Federal Government trunked radio systems.</p> <p><u>Private Sector Usage:</u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones.</p> <p><u>Federal & Private Sector Usage.</u> Radio Astronomy. One of the frequency bands allocated to the radio astronomy service that is preferred for continuum observations.</p>	

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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		

410-470 MHz

<p>410-420</p>	<p>FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) S5.268</p>	<p>410-412.6125 <u>Federal Usage:</u> Land Mobile Radio & Trunked Systems. This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations. This band supports Federal Government trunked radio systems. NASA EVA. Extra-vehicular activity communications for manned space program</p> <p>412.6125- 412.6375 <u>Federal Usage:</u> Data Collection. Various Federal agencies use this band for the automatic fixed station transmission of hydrologic or meteorological data (or both). Trunked Systems. This band supports Federal Government trunked radio systems. <u>Private Sector Usage:</u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones.</p> <p>412.6375- 412.6625 <u>Federal Usage:</u> Land Mobile Radio Systems. This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations.</p>	
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Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>412.6625– 412.6875 <u><i>Federal Usage:</i></u> Data Collection. Various Federal agencies use this band for the automatic fixed station transmission of hydrologic or meteorological data (or both). <u><i>Private Sector Usage:</i></u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones.</p> <p>412.6875– 412.7125 <u><i>Federal Usage:</i></u> Land Mobile Radio Systems.. This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations.</p> <p>412.7125– 412.7375 <u><i>Federal Usage:</i></u> Data Collection. Various Federal agencies use this band for the automatic fixed station transmission of hydrologic or meteorological data (or both). <u><i>Private Sector Usage:</i></u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones.</p> <p>412.7375– 412.7625 <u><i>Federal Usage:</i></u> Land Mobile Radio Systems. This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>412.7625– 412.7875 <u>Federal Usage:</u> Data Collection. Various Federal agencies use this band for the automatic fixed station transmission of hydrologic or meteorological data (or both). <u>Private Sector Usage:</u> This band is used by the Private Land Mobile Radio Service consisting of industrial/business licensees for hydrological or weather data operations and for low-power wireless microphones.</p> <p>412.7875– 420 <u>Federal Usage:</u> Land Mobile Radio Systems. This band is primarily used by Federal agencies for non-tactical land mobile radio networks that maintain and support their agency infrastructure functions at and in the vicinity of their stations and at ancillary locations.</p>	
420-430	<p>FIXED MOBILE except aeronautical mobile Radiolocation S5.269 S5.270 S5.271</p>		<p>420–422.1875 <u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation operations are limited to some Federal agencies. This radiolocation band is also important for and is the only available radiolocation band for the detection of advanced technology systems. Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand. <u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is radiolocation operation.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>422.1875– 425.4875 <u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation operations are limited to some Federal agencies. This radiolocation band is also important for and is the only available radiolocation band for the detection of advanced technology systems.</p> <p>Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand.</p> <p><u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is radiolocation operation.</p>	
			<p>425.4875– 427.1875 <u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation operations are limited to some Federal agencies. This radiolocation band is also important for and is the only available radiolocation band for the detection of advanced technology systems.</p> <p>Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand.</p> <p><u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is radiolocation operation.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>427.1875– 429.9875</p> <p><u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation operations are limited to some Federal agencies. This radiolocation band is also important for and is the only available radiolocation band for the detection of advanced technology systems.</p> <p>Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand.</p> <p><u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is radiolocation operation.</p> <p>429.9875– 430</p> <p><u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation operations are limited to some Federal agencies. This radiolocation band is also important for and is the only available radiolocation band for the detection of advanced technology systems.</p> <p>Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand.</p> <p><u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			radiolocation operation.	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
<p>430-440 AMATEUR RADIOLOCATION</p>	<p>430-440 RADIOLOCATION Amateur</p>		<p>430– 435 <u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation operations are limited to some Federal agencies. This radiolocation band is also important for and is the only available radiolocation band for the detection of advanced technology systems. Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand. <u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is radiolocation operation.</p> <p>435– 438 <u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation operations are limited to some Federal agencies. This radiolocation band is also important for and is the only available radiolocation band for the detection of advanced technology systems. Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand. <u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Band plan identifies uplink and downlink frequencies for use with space stations in the amateur-satellite service. Amateurs provide emergency, public-service communications in this band. Also</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>on a secondary status is radiolocation operation.</p> <p>438– 440 <u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation operations are limited to some Federal agencies. This radiolocation band is also important for and is the only available radiolocation band for the detection of advanced technology systems.</p> <p>Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand.</p> <p><u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is radiolocation operation.</p>	
S5.138 S5.271 S5.272 S5.273 S5.274 S5.275 S5.276 S5.277 S5.280 S5.281 S5.282 S5.283	S5.271 S5.276 S5.277 S5.278 S5.279 S5.281 S5.282			
440-450 S5.286	FIXED MOBILE except aeronautical mobile Radiolocation S5.269 S5.270 S5.271 S5.284 S5.285		<p>440–449.75 <u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation use are limited to some Federal agencies and is important for it is the only available radiolocation band for the detection of advanced technology systems.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>Wind Profiler Radar. Frequency 449 MHz (plus or minus 1MHz) is authorized for Federal use for the wind profiler radar whose implementation for weather purposes is expected to be rapid.</p> <p>Telemetry & Telecommand. NASA and some Federal agencies use of telemetry and telecommand is extensive.</p> <p><u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is radiolocation operation.</p> <p>449.75– 450</p> <p><u>Federal Usage:</u> Radars. This band is used by various Federal agencies for ground, shipborne, and airborne long-range surveillance radars. These uses are essential to the nation’s aerospace early warning defense capability, public safety functions, and the tracking of objects in space. These radar systems operate with very high power and wide bandwidths. Radiolocation use are limited to some Federal agencies and is important for it is the only available radiolocation band for the detection of advanced technology systems.</p> <p>Wind Profiler Radar. Frequency 449 MHz (plus or minus 1 MHz) is authorized for Federal use for the wind profiler radar whose implementation for weather purposes is expected to be rapid.</p> <p>Telemetry and Telecommand. NASA and some Federal agencies use this band extensively for telemetry and telecommand.</p> <p><u>Private Sector Usage:</u> This band is used for Amateur Radio on a secondary status and is available to all licensed amateurs except Novices. Amateurs provide emergency, public-service communications in this band. Also on a secondary status is radiolocation operation.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
450-455	FIXED MOBILE S5.209 S5.271 S5.286 S5.286A S5.286B S5.286C S5.286D S5.286E		<p>450– 450.25 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees as well as the Auxiliary Broadcasting Service for electronic news gathering licensees. <i>Federal Usage: Experimental.</i> Some Federal agencies have temporary assignments in this band that do not conform to the National Table of Frequency Allocations.</p> <p>450.25– 451 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees as well as the Auxiliary Broadcasting Service for electronic news gathering licensees. <i>Federal Usage: Land Mobile Radio.</i> Various Federal agencies are authorized to use frequencies in this band in support of mutual aid response to local communities.</p> <p>451– 454 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees as well as the Auxiliary Broadcasting Service for electronic news gathering licensees. <i>Federal Usage: Land Mobile Radio.</i> Various Federal agencies are authorized to use frequencies in this band in support of mutual aid response (fire fighting, disaster preparedness, contingencies, etc.) to local communities.</p> <p>454–455 <i>Private Sector Usage:</i> This band is used primarily by the Public Mobile Services consisting of paging and radiotelephone licensees, rural radiotelephone licensees, and Air-Ground radio telephone licensees, for general aviation. <i>Federal Usage: Experimental.</i> Equipment testing is performed on a</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			NIB basis in this band.	
455-456 FIXED MOBILE S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E	455-456 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.286A S5.286B S5.286C S5.209 S5.271	455-456 FIXED MOBILE S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E	<u>Private Sector Usage:</u> This band is used primarily by the Auxiliary Broadcasting Service for electronic news gathering licensees.	
456-459 FIXED MOBILE S5.271 S5.287 S5.288			<u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees as well as the Maritime Mobile Services for radiodetermination (offshore radiolocation) and associated telecommand operations. <u>Federal Usage: Land Mobile Radio.</u> Various Federal agencies are authorized to use frequencies in this band in support of mutual aid response (fire fighting, disaster preparedness, contingencies, etc.) to local communities.	
459-460 FIXED MOBILE	459-460 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.286A S5.286B S5.286C	459-460 FIXED MOBILE	<u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees as well as the Maritime Mobile Services for radiodetermination (offshore radiolocation) and associated telecommand operations. <u>Federal Usage: Land Mobile Radio.</u> Various Federal agencies have assignments in this band for non-government public correspondence that do not conform to the National Table of Frequency Allocations.	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E	S5.209 S5.271	S5.209 S5.271 S5.286A S5.286B S5.286C S5.286E		
460-470	FIXED MOBILE Meteorological-Satellite (space-to-Earth) S5.287 S5.288 S5.289 S5.290		<p>460– 462.5375 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. <i>Federal Usage: Land Mobile Radio.</i> Various Federal agencies have assignments in this band for functions such as mutual aid response to local communities, ground telemetry for coronary care, etc., that do not conform to the National Table of Frequency Allocations.</p> <p>462.5375– 462.7375 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Services consisting of dispatch radio and point-to-multipoint licensees. <i>Federal Usage: Land Mobile Radio.</i> Some Federal agencies have assignments in this band for mutual aid response to local communities that do not conform to the National Table of Frequency Allocations.</p> <p>462.7375– 467.5375 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees. <i>Federal Usage: Land Mobile Radio.</i> Primarily used by Federal agencies for medical surveillance telemetry. Other uses are fixed and mobile that do not conform to the National Table of Frequency Allocations.</p> <p>467.5375– 467.7375 <i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>467.7375– 470</p> <p><i>Private Sector Usage:</i> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p> <p><i>Federal Usage: WXD Satellite.</i> The GOES meteorological satellite operates in this band and interrogates data collection platforms at hundreds of locations.</p> <p>Land Mobile Radio. Various Federal agencies operate medical surveillance telemetry systems. Other Federal agencies are authorized to operate land mobile radios in support of mutual aid response to local communities.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		

470-890 MHz

470-790 BROADCASTING S5.149 S5.291A S5.294 S5.296 S5.300 S5.302 S5.304 S5.306 S5.311 S5.312	470-512 BROADCASTING Fixed Mobile S5.292 S5.293	470-585 FIXED MOBILE BROADCASTING S5.291 S5.298	470- 512 <u>Private Sector Usage:</u> Frequencies in this band are used for: a) TV broadcast, channels 14-20; b) Private Land Mobile Radio Services consisting of public safety licensees; c) Public Mobile Services consisting of paging and radiotelephone licensees, trunked mobile licensees, and offshore radiotelephone licensees; d) Auxiliary Broadcasting Service for electronic news gathering, low power TV/TV translators; and e) Unlicensed biomedical telemetry devices. <u>Federal Usage: Non-Military LMR.</u> Some Federal agencies have assignments in this band for mutual aid response (medical, fire suppression, etc.) to local communities that do not conform to the National Table of Frequency Allocations.		
	512-608 BROADCASTING S5.297	585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION S5.149 S5.305 S5.306 S5.307			
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile- satellite (Earth-to-space)	610-890 FIXED MOBILE BROADCASTING			512- 608 <u>Private Sector Usage:</u> Frequencies in this band are used for: a) TV broadcast, channels 21-36; b) Auxiliary Broadcasting Service for low power TV/TV translators. <u>Federal Usage: Experimental.</u> Some Federal agencies operate systems in this that are not in conformance with the National Table of Frequency Allocations: radio astronomy receiver (600- 620 MHz), aeronautical telemetering land stations, experimental testing stations, etc
	614-806 BROADCASTING Fixed Mobile S5.293 S5.309 S5.311				608- 614 <u>Federal & Private Sector Usage. Radio Astronomy.</u> One of the radio astronomy service's preferred frequency bands for continuum observations. Research and studies are made of pulsars, the Sun, and the planet Jupiter that have enabled scientists to further study the whole of the Milky Way galaxy
	790-862 FIXED BROADCASTING S5.312 S5.314 S5.315 S5.316 S5.318 S5.321	FIXED MOBILE BROADCASTING			

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
S5.319 S5.321			<p>614– 806 <u>Private Sector Usage:</u> Frequencies in this band are used for:</p> <ul style="list-style-type: none"> a) TV broadcast, channels 37-59; b) Auxiliary Broadcasting Service for electronic news gathering, low power TV/TV translators; c) Former TV channels 63, 64, 68, and 69 reallocated for fixed and mobile and designated for public safety. Further, former TV channels 60-62 and 65-67 designated for commercial use. <p><u>Federal Usage:</u> Land Mobile Radio. Some Federal agencies are authorized to operate land mobile equipment in support of mutual aid response agreements with local communities.</p> <p>Experimental. Some Federal agencies conduct equipment and experimental testing.</p> <p>Radio Astronomy. Radio astronomy observes in this band (600– 620 MHz)</p> <p>806– 821 <u>Private Sector Usage:</u> This band is used primarily for the:</p> <ul style="list-style-type: none"> a) Private Land Mobile Radio Services consisting of public safety licensees; and b) Public Mobile Services consisting of paging and radiotelephone licensees. <p><u>Federal Usage:</u> Land Mobile Radio. Various Federal agencies are authorized to operate land mobile equipment in support of mutual aid response agreements with local communities.</p> <p>821– 824 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Services consisting of public safety and industrial/business licensees.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p><u>Federal Usage:</u> Land Mobile Radio. Various Federal agencies are authorized to operate land mobile equipment in support of mutual aid response agreements with local communities.</p> <p>824– 849 <u>Private Sector Usage:</u> This band is used primarily by the Public Mobile Services consisting of cellular radiotelephone service licensees. Frequencies paired with 869-894 MHz.</p> <p><u>Federal Usage:</u> Experimental. Some Federal agencies operate experimental testing stations in this band and others operate radio systems not in conformance with the National Table of Frequency Allocations.</p> <p>849-851 <u>Private Sector Usage:</u> This band is used primarily by the Public Mobile Services consisting of:</p> <ul style="list-style-type: none"> a) Paging & radiotelephone service licensees; b) Air–Ground radio telephone service licensees for commercial aviation A/G (ground stations). <p>851-866 <u>Private Sector Usage:</u> This band is used primarily by the 1) Private Land Mobile Radio Services consisting of public safety and industrial/business licensees; and 2) Public Mobile Services consisting of paging and radiotelephone licensees.</p> <p><u>Federal Usage:</u> Land Mobile Radio. Various Federal agencies are authorized to operate land mobile equipment in support of mutual aid response agreements with local communities.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
<p>862-890 FIXED MOBILE except aeronautical mobile BROADCASTI NG S5.322</p>			<p>866-869 <i>Private Sector Usage:</i> This band is used primarily for the Private Land Mobile Radio Services consisting of public safety licensees.</p> <p><i>Federal Usage: Land Mobile Radio.</i> Various Federal agencies are authorized to operate land mobile equipment in support of mutual aid response agreements with local communities</p> <p>869-894 <i>Private Sector Usage:</i> This band is used primarily by the Public Mobile Services consisting of cellular radiotelephone service licensees. Frequencies paired with 869-894 MHz..</p> <p><i>Federal Usage: Training.</i> Personnel training is conducted in this band and the assignments are not in conformance with the National Table of Frequency Allocations.</p> <p>Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p>	
S5.319 S5.323	S5.317 S5.318	S5.149 S5.305 S5.306 S5.307 S5.311 S5.320		

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		

890- 960 MHz

<p>890-942 FIXED MOBILE except aeronautical mobile BROADCASTING S5.322 Radiolocation</p>	<p>890-902 FIXED MOBILE except aeronautical mobile Radiolocation S5.318 S5.325</p>	<p>890-942 FIXED MOBILE BROADCASTING Radiolocation</p>	<p>894-896 <u>Private Sector Usage:</u> This band is used primarily by the Public Mobile Services consisting of: a) Paging & radiotelephone service licensees; b) Air– Ground radio telephone service licensees for commercial aviation A/G (ground stations). <u>Federal Usage: Training.</u> Some Federal agencies operate experimental testing stations in this band. Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies 896-901 <u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Service consisting of industrial/business licensees. <u>Federal Usage: Training.</u> Some Federal agencies operate experimental testing stations in this band. Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies. 901-902 <u>Private Sector Usage:</u> This band is used primarily for the Personal Communications Service consisting of: 1) Two-way paging (mobile response channels); and 2) Narrowband PCS (nationwide and regional) licensees. <u>Federal Usage: Radars.</u> Various radiolocation systems operate in this band. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p>
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United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>902-928 <u>Federal Usage:</u> Radars. Various Federal agencies operate mobile and fixed radars in this band.</p> <p>Land Mobile Radio. Numerous fixed and mobile systems are supported in this band.</p> <p>Wind Profiler Radar. Frequency 915 MHz (plus or minus 13 MHz) is authorized for Federal use for the wind profiler radar whose implementation for weather purposes is expected to be rapid.</p> <p><u>Federal & Private Sector Usage.</u> ISM. The band 902-928 MHz (center frequency 915 MHz) is designated for industrial, scientific and medical (ISM) applications.</p> <p><u>Private Sector Usage:</u> This band is used by the:</p> <ol style="list-style-type: none"> 1) Transportation Infrastructure Radio Service consisting of location & monitoring service licensees; 2) Unlicensed radio frequency devices; and 3) Amateur Radio with secondary status and usage is available to all licensed amateurs except Novices. <p>928– 929 <u>Private Sector Usage:</u> This band is used primarily for:</p> <ol style="list-style-type: none"> 1) The Fixed Microwave Services consisting of private radio (multipoint address systems); and 2) Public Mobile Services consisting of paging and radiotelephone licensees (point-to-multipoint operations). <p><u>Federal Usage:</u> Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p>929– 930 <u>Private Sector Usage:</u> This band is used primarily for the Private Land Mobile Radio Services consisting of public safety licensees.</p> <p><u>Federal Usage: Land Mobile Radio.</u> Federal agency shares a paging frequency with local medical facility and the assignment is not in conformance the National Table of Frequency Allocations. Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p> <p>930– 931 <u>Private Sector Usage:</u> This band is used primarily by the Personal Communications Service consisting of narrowband PCS (nationwide and regional) licensees in 901–902 MHz, 930–931 MHz, and 940–941 MHz bands.</p> <p><u>Federal Usage: Radars.</u> Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p> <p>931– 932 <u>Private Sector Usage:</u> This band is used primarily by the Public Mobile Services consisting of paging service licensees.</p> <p><u>Federal Usage: Radars.</u> Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p> <p>932– 935 <u>Federal Usage: Point-to-Point.</u> Various Federal agencies use this band primarily for point-to-point microwave systems (low density communications links– voice and/or data) and usually has a paired frequency in the 941– 944 MHz band.</p> <p>Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
			<p><u>Private Sector Usage:</u> This band is used by the:</p> <ul style="list-style-type: none"> a) Fixed Microwave Services; b) Private radio– multipoint address systems (932– 932.5 MHz) and operational fixed point-to-point microwave (932.5– 935 MHz). (WTB pt 101); c) Common carrier– multipoint address systems (932– 932.5 MHz) and common carrier point-to-point microwave (932.5– 935 MHz). (WTB pt 101); d) Public Mobile Services; e) Paging & radiotelephone service (point-to-multipoint) <p>935– 940</p> <p><u>Private Sector Usage:</u> This band is used primarily by the Private Land Mobile Radio Service consisting of industrial/business licensees including specialized mobile radio licensees.</p> <p><u>Federal Usage:</u> Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p> <p>940–941</p> <p><u>Private Sector Usage:</u> This band is used primarily by the Personal Communications Service consisting of narrowband PCS (nationwide and regional) licensees.</p> <p><u>Federal Usage:</u> Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.</p>	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
S5.323	902-928 FIXED Amateur Mobile except aeronautical mobile Radiolocation S5.150 S5.325 S5.326	S5.327		
	928-942 FIXED MOBILE except aeronautical mobile Radiolocation S5.325			
942-960 FIXED MOBILE except aeronautical mobile BROADCASTING S5.322	942-960 FIXED MOBILE	942-960 FIXED MOBILE BROADCASTING	941– 944 <u>Private Sector Usage:</u> This band is used by the: <ul style="list-style-type: none"> a) Fixed Microwave Services; b) Private radio– multipoint address systems and operational fixed point-to-point microwave; c) Common carrier– multipoint address systems and common carrier point-to-point microwave; d) Public Mobile Services; e) Paging & radiotelephone service (point-to-multipoint) <u>Federal Usage: Point-to-Point.</u> Various Federal agencies use this band primarily for point-to-point microwave systems (low density communications links– voice and/or data) and usually has a paired frequency in the 932–935 MHz band. Radars. Radiolocation operations are permitted on an NIB basis and are limited to some Federal agencies.	

United States

Extract from Radio Regulations, 1998 edition			United States Spectrum Uses	Products
Region 1	Region 2	Region 3		
S5.323		S5.320	<p>944– 960</p> <p><i>Private Sector Usage:</i> This band is used by the:</p> <ul style="list-style-type: none"> a) Fixed Microwave Services for private radio service licensees for multipoint address systems and operational fixed point-to-point microwave; b) Public Mobile Services for paging & radiotelephone service licensees (point-to-multipoint); and c) Auxiliary Broadcasting Service for studio-to-transmitter links. <p><i>Federal Usage: Land Mobile Radio.</i> Mutual aid support in response to local requirements and agreements is authorized in this band for some Federal agencies.</p> <p>Experimental. Experimental testing of radio systems is conducted in this band.</p>	

**ATTACHMENT A – UNITED STATES FOOTNOTES TO RADIO FREQUENCY
ALLOCATION TABLE**

US216--The frequencies 150.775 and 150.790, and the bands 152-152.0150, 163.2375-163.2625, 462.9375-463.1875, and 467.9375-468.1875 MHz are authorized for Government/non-Government operations in medical radio communications systems.

US266--Licensees in the Public Safety Radio Services holding a valid authorization on June 30, 1958, to operate in the frequency band 156.27-157.47 MHz or on the frequencies of 161.85, 161.91 or 161.97 MHz may, upon proper application, continue to be authorized for such operation, including expansion of existing systems, until such time as harmful interference is caused to the operation of any authorized station other than those licensed in the Public Safety Radio Service.

US312--The frequency 173.075 MHz may also be authorized on a primary basis to non-Government stations in the Police Radio Service (with a maximum authorized bandwidth of 20 kHz) for stolen vehicle recovery systems.

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

UNITED STATES RESPONSE
TO QUESTIONNAIRE ON NATIONAL
RADIO FREQUENCY SPECTRUM MANAGEMENT

ITU Administrative Circulars CA/08 & CA/71 – Part II

Date submitted—January 21, 2000

1. Do you have a national law governing spectrum management? YES NO ___
- Last date this law was changed or modified? 1996
- Are any actions planned to change this law? YES NO ___

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

2. Have you published regulations and procedures for national spectrum management (e.g. radio services, license requirements etc.)? YES NO ___

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

3. Do you have a national radio frequency spectrum allocation table? YES NO ___

For further details on the United States radio frequency spectrum allocations, please see the Internet web sites for the Department of Commerce's National Telecommunications and Information Administration (Federal Government spectrum uses) and the Federal Communications Commission (non Federal Government uses) –

<http://www.ntia.doc.gov> and <http://www.fcc.gov>

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

4. Do you have technical specifications for national spectrum use? YES NO ___

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

United States

5. Do you have a need for any spectrum redeployment* ? YES NO
- If so, do you have a strategy for achieving this redeployment in respective frequency bands and for given radiocommunication services? YES NO

There is a continuously ongoing review in the United States of users' spectrum requirements (both national and international) and the existing allocations of given frequency bands. This review is conducted in a public and transparent process in which a determination is made whether, or not, redeployment of given frequency bands is appropriate.

6. What is the total cost of national spectrum management functions performed by your Government (expressed in Swiss francs)?

Specified spectrum management responsibilities are performed in a number of different Federal Government Agencies, including the Federal Communications Commission, the Department of Commerce's National Telecommunication and Information Administration, and the respective Military and Civil Executive Branch Departments. The estimated total cost of spectrum management functions performed in these agencies is about 150 million Swiss francs.

- What is the source of the funding required to accomplish these spectrum management functions?

National Appropriations by the Legislature

7. Do you have a method for establishing spectrum users' fees? YES NO
- If so, please give a brief description of the method used in establishing those fees.

Please see Report ITU – R Study Group 1 SM 2012

8. Do you maintain centralized databases for spectrum management? YES NO
-What is the approximate size of your database (expressed in number of records)?

The total number of frequency records maintained in the United States, including both US Federal agencies' and non-US Federal agencies' spectrum authorizations is about 100 million records.

Note that a "frequency record" is defined in the US as one frequency assignment

for a given geographic area.

- Do you have a computerized data base management system (DBMS)?

YES NO

- What DBMS systems do you use?

SYBASE, MicroSoft ACCESS, and INGRES

United States

- Are these frequency assignment records available to public? YES NO

The frequency assignment records of non-Federal agency uses are available to the public; however, some assignments for Federal agency uses are not available to the public.

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

9. Do you notify frequency assignments to the ITU? YES NO

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

10. Do you have a policy and planning function for national spectrum management (i.e. a national strategy for future use of the spectrum)? YES NO

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

11. Do you perform technical analyses of frequency assignment requests? YES NO

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

12. Do you perform radio monitoring? YES NO

Fixed Monitoring

- i) 100 kHz to 40 MHz performed at 14 sites
- ii) 100 kHz to 2 GHz performed at an additional 16 sites

Fixed Monitoring with Direction Finding

- i) 100 kHz to 40 MHz performed at 14 sites
- ii) 30 MHz to 2 GHz performed at an additional 3 sites

Mobile Monitoring

- i) 100 kHz to 40 GHz performed in 3 self propelled vans
- ii) 100 kHz to 1 GHz performed in an additional 68 mobile units
- iii) 100 kHz to 2 GHz performed in an additional 15 mobile units

Mobile with Direction Finding

- i) 100 kHz to 1 GHz performed in 68 mobile units
- ii) 100 kHz to 2 GHz performed in an additional 15 units

Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?

No problems have been identified that require assistance from the ITU

United States

13. Do you perform technical analyses of radio frequency interference complaints? YES NO
- Do you have an established consultation process, involving Government and non-government organization, for resolving these complaints? YES NO
- Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?
- No problems have been identified that require assistance from the ITU**
14. What computers and operating systems are in use for national spectrum management?
Type of computers: PCs, SUN
Operating systems: Unix, MicroSoft Windows 95 and 98, SUN, Novell
- Have any problems been identified? and if so, do you need any assistance from the ITU in solving them?
- No problems have been identified that require assistance from the ITU**
15. Number of technical/professional staff in national spectrum management? 1050
16. Number of support staff in national spectrum management? 350
17. Describe your country's spectrum management structure (Please enclose a copy of organization chart).
- For further detailed information regarding the management of the spectrum used by the US Federal Agencies, including a spectrum allocation chart and organizational charts, please see the Department of Commerce's National Telecommunications and Information Administration's web site at**
- <http://www.ntia.doc.gov>**
- For further detailed information regarding the management of the spectrum used by non-US Federal Agencies please see the Federal Communications Commission's web site at <http://www.fcc.gov>**
18. **Do you use the ITU-R Handbooks and Reports on:**
- a) National Spectrum Management, version 1995 ? Yes
- b) Spectrum Monitoring¹, version 1995? Yes
- c) Computer-aided Techniques for Spectrum Management, version 1999? Yes

¹ The Spectrum Monitoring Handbook is currently being updated, therefore, you are urged to contact Mr Jan Verduijn (NL), the designated Rapporteur from ITU-R Study Group 1, Working Party 1C if you have any comments that you wish included in a future version of this Handbook.

United States

- d) HF Broadcasting System Design, version 1999? **Yes**
- e) Report SM.2012, Economic Aspects of Spectrum Management, version 1997²? **Yes**
- f) Windows Basic Automated Spectrum Management System
(WinBASMS) Software Version 1997, Manual Version 1997 **Yes**

What additional information/handbooks do you need from the ITU?

Updated Spectrum Monitoring Handbook

² This Report SM.2012 was updated during the ITU-R Study Group 1 meeting in August 1999. This new version is expected to be available in the three working languages by January 2000.

