

Multi-Use Radio Service

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In the United States, the **Multi-Use Radio Service (MURS)** is an unlicensed two-way radio service similar to Citizens Band (CB). Established by the U.S. Federal Communications Commission in the fall of 2000, MURS created a radio service allowing for unlicensed (Part 95) operation, with a power limit of 2 watts. The FCC formally defines MURS as "a private, two-way, short-distance voice or data communications service for personal or business activities of the general public." MURS stations may not be connected to the public telephone network, may not be used for store and forward operations, and radio repeaters are not permitted.

In 2009 Industry Canada (IC) established a five year transition plan which would have permitted the use of MURS in Canada starting June 2014.^[1] In August 2014 IC announced a deferral of MURS introduction, as "the Department does not feel that the introduction of MURS devices in Canada is warranted at this time, and has decided to defer the introduction of MURS devices in Canada until a clearer indication of actual need is provided by Canadian MURS advocates and/or stakeholders.."^[2]

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Eligibility

No licenses are required or issued for MURS within the United States.

Any person is authorized to use the MURS frequencies given that it:^[3]

- Is not a foreign government or a representative of a foreign government.
- Uses the transmitter in accordance with 47 CFR. 95.1309.
- Operates in accordance with the rules contained in Sections 95.1301-95.1309.
- Operates only legal, type accepted MURS equipment.

Frequencies

MURS comprises the following five frequencies:

Channel	Frequency	Maximum Authorized bandwidth	Channel Name
1	151.820 MHz	11.25 kHz	N/A
2	151.880 MHz	11.25 kHz	N/A
3	151.940 MHz	11.25 kHz	N/A
4	154.570 MHz	20.00 kHz	Blue Dot
5	154.600 MHz	20.00 kHz	Green Dot

Channels 1-3 must use "narrowband" frequency modulation (2.5 kHz deviation). Channels 4 and 5 may use either "wideband" FM (5 kHz deviation) or "narrowband" FM. MURS falls under part 95 and was not mandated for narrow banding such as those of part 90 in the public service bands by January 2013.

Because previous business band licensees who have maintained their active license remain grandfathered with their existing operating privileges, it is possible to find repeaters or other operations not authorized by Part 95 taking place. These are not necessarily illegal. If legal, such operations may enjoy primary status on their licensed frequency and as such are legally protected from harmful interference by MURS users.^[4]

Range

MURS range will vary depending on antenna size and placement. With an external antenna, ranges of 10 miles or more can be expected.^[5] Full line-of-sight propagation is usually not possible due to the relatively low power restriction of 2 watts.

Authorized modes

Designator	Common Name
A1D	Amplitude modulation; on off keyed or quantized; no modulation; Data, telemetry, telecommand
A2B	Amplitude modulation; Digital, with modulation; Telegraphy for machine copy (RTTY, fast Morse)
A2D	Amplitude modulation; Digital, with modulation; Data, telemetry, telecommand
A3E	Amplitude modulation; Single analog channel; Telephony, voice, sound broadcasting
F2B	Angle modulation, straight FM; Digital, with modulation; Telegraphy for machine copy (RTTY, fast Morse)
F1D	Angle modulation, straight FM; on off keyed or quantized; Data, telemetry, telecommand
F2D	Angle modulation, straight FM; Digital, with modulation; Data, telemetry, telecommand
F3E	Angle modulation, straight FM; Single analog channel; Telephony, voice, sound broadcasting
G3E	Angle modulation, phase modulation; Single analog channel; Telephony, voice, sound broadcasting

Permitted areas of operation

MURS operation is authorized anywhere a CB station is authorized and within or over any area of the world where radio services are regulated by the FCC. Those areas are within the territorial limits of:

- The fifty United States
- The District of Columbia
- Caribbean Insular areas
- Commonwealth of Puerto Rico
- Navassa Island
- United States Virgin Islands (50 islets and cays)
- Pacific Insular areas
- American Samoa (seven islands)
- Baker Island
- Commonwealth of Northern Mariana Islands
- Guam Island
- Howland Island
- Jarvis Island
- Johnston Island (Islets East, Johnston, North and Sand)
- Kingman Reef
- Midway Island (Islets Eastern and Sand)
- Palmyra Island (more than fifty islets)
- Wake Island

- Aboard any vessel of the United States, with the permission of the captain, while the vessel is traveling either domestically or in international waters.

Restrictions

- Transmitter power output is limited to 2 watts.
- The highest point of any MURS antenna must not be more than 18.3 meters (60 feet) above the ground or 6.10 meters (20.0 feet) above the highest point of the structure to which it is mounted, whichever is higher.^[6]
- Transmitting on MURS frequencies is not allowed while aboard aircraft in flight.^[6]
- When transmitting in Puerto Rico, Desecheo, Mona, Vieques, and Culebra, care must be taken to not interfere with the Arecibo Observatory
- Devices that use MURS must be specially labeled and certified.^[5]

Products

There are a wide variety of radio products that use MURS frequencies. MURS devices consist of wireless base station intercoms, handheld two-way radios, wireless dog training collars, wireless public address units, customer service callboxes, wireless remote switches, and wireless callboxes with or without gate opening ability. Since MURS uses standard frequencies, most devices that use MURS are compatible with each other.

The goTenna digital radio product operates on the MURS band and pairs with smartphones to enable users to send texts and share locations on a peer-to-peer basis. goTenna is not interoperable with other MURS devices even though they operate on the same spectrum, employing “listen-before-talk” to reduce interference in the band’s five channels.^{[7][8][9]}

See also

- Citizens band
- Business band
- Family Radio Service
- GMRS
- Unlicensed Personal Communications Services

References

1. "Spectrum Allocation and Utilization Policy Regarding the Use of Certain Frequency Bands Below 1.7 GHz for a Range of Radio Applications" (PDF). Industry Canada. June 2009. Retrieved September 2, 2011. "A five-year transition period is established from the publication date of this spectrum policy, after which the distribution and sale of MURS devices will be permitted."
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3. http://wireless.fcc.gov/services/index.htm?job=service_home&id=multi_use
4. 47 C.F.R. 95.1317 (<https://www.gpo.gov/fdsys/delivery/get-cfr.action?TYPE=TEXT&YEAR=current&TITLE=47&PART=95&SECTION=1317>)
5. <http://www.fcc.gov/encyclopedia/multi-use-radio-service-murs-0>

6. <http://www.gpo.gov/fdsys/pkg/CFR-2009-title47-vol5/pdf/CFR-2009-title47-vol5-part95.pdf>
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9. Nelson, Patrick. "Device lets smartphones communicate during network outage". *Network World*. Network World. Retrieved 3 November 2015.

External links

- FCC Wireless Services: MURS Home (http://wireless.fcc.gov/services/index.htm?job=service_home&id=multi_use)
- MURS Rules Summary (http://wireless.fcc.gov/services/index.htm?job=operations&id=multi_use)

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