

Band Plan

Band Plan

A band plan refers to a voluntary division of a band to avoid interference between incompatible modes.

Resources

- [Sharing arrangements](#)
- [Detailed packet frequencies](#) [PDF]
- [Phone patch, autopatch and HF/VHF/UHF operating guidelines](#)
- ["Considerate Operator's Frequency Guide"](#)

160 Meters (1.8-2.0 MHz)

1.800 - 2.000 CW
1.800 - 1.810 Digital Modes
1.810 CW QRP
1.843-2.000 SSB, SSTV and other wideband modes
1.910 SSB QRP
1.995 - 2.000 Experimental
1.999 - 2.000 Beacons

80 Meters (3.5-4.0 MHz)

3.590 RTTY/Data DX
3.570-3.600 RTTY/Data
3.790-3.800 DX window
3.845 SSTV
3.885 AM calling frequency

60 Meters (5 MHz channels)

*Only one signal at a time is permitted on any channel

*Maximum effective radiated output is 100 W PEP

5330.5 USB phone¹ and CW/RTTY/data²

5346.5 USB phone¹ and CW/RTTY/data²

5357.0 USB phone¹ and CW/RTTY/data²

5371.5 USB phone¹ and CW/RTTY/data²

5403.5 USB phone¹ and CW/RTTY/data²

1. USB is limited to 2.8 kHz

2. CW and digital emissions must be centered 1.5 kHz above the channel frequencies indicated in the above chart

40 Meters (7.0-7.3 MHz)

7.040 RTTY/Data DX

7.080-7.125 RTTY/Data

7.171 SSTV

7.290 AM calling frequency

30 Meters (10.1-10.15 MHz)

10.130-10.140 RTTY

10.140-10.150 Packet

20 Meters (14.0-14.35 MHz)

14.070-14.095 RTTY

14.095-14.0995 Packet

14.100 NCDXF Beacons

14.1005-14.112 Packet

14.230 SSTV

14.286 AM calling frequency

17 Meters (18.068-18.168 MHz)

18.100-18.105 RTTY

18.105-18.110 Packet

15 Meters (21.0-21.45 MHz)

21.070-21.110 RTTY/Data

21.340 SSTV

12 Meters (24.89-24.99 MHz)

24.920-24.925 RTTY

24.925-24.930 Packet

10 Meters (28-29.7 MHz)

28.000-28.070 CW

28.070-28.150 RTTY

28.150-28.190 CW

28.200-28.300 Beacons

28.300-29.300 Phone

28.680 SSTV

29.000-29.200 AM

29.300-29.510 Satellite Downlinks

29.520-29.590 Repeater Inputs

29.600 FM Simplex

29.610-29.700 Repeater Outputs

6 Meters (50-54 MHz)

50.0-50.1 CW, beacons

50.060-50.080 beacon subband

50.1-50.3 SSB, CW

50.10-50.125 DX window

50.125 SSB calling

50.3-50.6 All modes

50.6-50.8 Nonvoice communications

50.62 Digital (packet) calling

50.8-51.0 Radio remote control (20-kHz channels)

51.0-51.1 Pacific DX window

51.12-51.48 Repeater inputs (19 channels)

| | |
|------------------------|---|
| 51.12-51.18 | Digital repeater inputs |
| 51.5-51.6 | Simplex (six channels) |
| 51.62-51.98 | Repeater outputs (19 channels) |
| 51.62-51.68 | Digital repeater outputs |
| 52.0-52.48 | Repeater inputs (except as noted; 23 channels) |
| 52.02, 52.04 | FM simplex |
| 52.2 | TEST PAIR (input) |
| 52.5-52.98 | Repeater output (except as noted; 23 channels) |
| 52.525 | Primary FM simplex |
| 52.54 | Secondary FM simplex |
| 52.7 | TEST PAIR (output) |
| 53.0-53.48 | Repeater inputs (except as noted; 19 channels) |
| 53.0 | Remote base FM simplex |
| 53.02 | Simplex |
| 53.1, 53.2, 53.3, 53.4 | Radio remote control |
| 53.5-53.98 | Repeater outputs (except as noted; 19 channels) |
| 53.5, 53.6, 53.7, 53.8 | Radio remote control |
| 53.52, 53.9 | Simplex |

2 Meters (144-148 MHz)

| | |
|-----------------|--|
| 144.00-144.05 | EME (CW) |
| 144.05-144.10 | General CW and weak signals |
| 144.10-144.20 | EME and weak-signal SSB |
| 144.200 | National calling frequency |
| 144.200-144.275 | General SSB operation |
| 144.275-144.300 | Propagation beacons |
| 144.30-144.50 | New OSCAR subband |
| 144.50-144.60 | Linear translator inputs |
| 144.60-144.90 | FM repeater inputs |
| 144.90-145.10 | Weak signal and FM simplex (145.01,03,05,07,09 are widely used for packet) |
| 145.10-145.20 | Linear translator outputs |
| 145.20-145.50 | FM repeater outputs |
| 145.50-145.80 | Miscellaneous and experimental modes |
| 145.80-146.00 | OSCAR subband |
| 146.01-146.37 | Repeater inputs |
| 146.40-146.58 | Simplex |
| 146.52 | National Simplex Calling Frequency |
| 146.61-146.97 | Repeater outputs |

147.00-147.39 Repeater outputs
147.42-147.57 Simplex
147.60-147.99 Repeater inputs

Notes: The frequency 146.40 MHz is used in some areas as a repeater input. This band plan has been proposed by the ARRL VHF-UHF Advisory Committee.

1.25 Meters (222-225 MHz)

222.0-222.150 Weak-signal modes
222.0-222.025 EME
222.05-222.06 Propagation beacons
222.1 SSB & CW calling frequency
222.10-222.15 Weak-signal CW & SSB
222.15-222.25 Local coordinator's option; weak signal, ACSB, repeater inputs, control
222.25-223.38 FM repeater inputs only
223.40-223.52 FM simplex
223.52-223.64 Digital, packet
223.64-223.70 Links, control
223.71-223.85 Local coordinator's option; FM simplex, packet, repeater outputs
223.85-224.98 Repeater outputs only

Note: The 222 MHz band plan was adopted by the ARRL Board of Directors in July 1991.

70 Centimeters (420-450 MHz)

420.00-426.00 ATV repeater or simplex with 421.25 MHz video carrier control links and experimental
426.00-432.00 ATV simplex with 427.250-MHz video carrier frequency
432.00-432.07 EME (Earth-Moon-Earth)
432.07-432.10 Weak-signal CW
432.10 70-cm calling frequency
432.10-432.30 Mixed-mode and weak-signal work
432.30-432.40 Propagation beacons
432.40-433.00 Mixed-mode and weak-signal work
433.00-435.00 Auxiliary/repeater links
435.00-438.00 Satellite only (internationally)
438.00-444.00 ATV repeater input with 439.250-MHz video carrier frequency and repeater links
442.00-445.00 Repeater inputs and outputs (local option)
445.00-447.00 Shared by auxiliary and control links, repeaters and simplex (local option)
446.00 National simplex frequency

447.00-450.00 Repeater inputs and outputs (local option)

33 Centimeters (902-928 MHz)

| Frequency Range | Mode | Functional Use | Comments |
|-----------------|-----------------------------------|--|----------------------------------|
| 902.000-902.075 | FM / other including DV Or CW/SSB | Repeater inputs 25 MHz split paired with those in 927.000-927.075 or Weak signal | 12.5 kHz channel spacing Note 2) |
| 902.075-902.100 | CW/SSB | Weak signal | |
| 902.100 | CW/SSB | Weak signal calling | Regional option |
| 902.100-902.125 | CW/SSB | Weak signal | |
| 902.125-903.000 | FM/other including DV | Repeater inputs 25 MHz split paired with those in 927.1250-928.0000 | 12.5 kHz channel spacing |
| 903.000-903.100 | CW/SSB | Beacons and weak signal | |
| 903.100 | CW/SSB | Weak signal calling | Regional option |
| 903.100-903.400 | CW/SSB | Weak signal | |
| 903.400-909.000 | Mixed modes | Mixed operations including control links | |
| 909.000-915.000 | Analog/digital | Broadband multimedia including ATV, DATV and SS | Notes 3) 4) |
| 915.000-921.000 | Analog/digital | Broadband multimedia including ATV, DATV and SS | Notes 3) 4) |
| 921.000-927.000 | Analog/digital | Broadband multimedia including ATV, DATV and SS | Notes 3) 4) |

| | | | |
|-----------------|-------------------------|--|--------------------------------------|
| 927.000-927.075 | FM / other including DV | Repeater outputs 25 MHz split paired with those in 902.0000-902.0750 | 12.5 kHz channel spacing |
| 927.075-927.125 | FM / other including DV | Simplex | |
| 927.125-928.000 | FM / other including DV | Repeater outputs 25 MHz split paired with those in 902.125-903.000 | 12.5 kHz channel spacing Notes 5) 6) |

Notes:

- 1) Significant regional variations in both current band utilization and the intensity and frequency distribution of noise sources preclude one plan that is suitable for all parts of the country. These variations will require many regional frequency coordinators to maintain band plans that differ in some respects from any national plan. As with all band plans, locally coordinated plans always take precedence over any general recommendations such as a national band plan.
- 2) May be used for either repeater inputs or weak-signal as regional needs dictate
- 3) Division into channels and/or separation of uses within these segments may be done regionally based on needs and usage, such as for 2 MHz-wide digital TV.
- 4) These segments may also be designated regionally to accommodate alternative repeater splits.
- 5) Simplex FM calling frequency 927.500 or regionally selected alternative.
- 6) Additional FM simplex frequencies may be designated regionally.

23 Centimeters (1240-1300 MHz)

| Frequency Range | Suggested Emission Types | Functional Use |
|------------------------|---------------------------------|--|
| 1240.00-1246.000 | ATV | ATV Channel #1 |
| 1246.000-1248.000 | FM, digital | Point-to-point links paired with 1258.000-1260.000 |
| 1248.000-1252.000 | Digital | |

| | | |
|-----------------------|-------------|---|
| 1252.000- 1258.000 | ATV | ATV Channel #2 |
| 1258.000- 1260.000 | FM, digital | Point-to-point links paired with 1246.000-1248.000 |
| 1240.000- 1260.000 | FM ATV | Regional option |
| 1260.000- 1270.000 | Various | Satellite uplinks, Experimental, Simplex ATV |
| 1270.000- 1276.000 | FM, digital | Repeater inputs, 25 kHz channel spacing, paired with 1282.000-1288.000 |
| 1270.000- 1274.000 | FM, digital | Repeater inputs, 25 kHz channel spacing, paired with 1290.000-1294.000 (Regional option) |
| 1276.000- 1282.000 | ATV | ATV Channel #3 |
| 1282.000- 1288.000 | FM, digital | Repeater outputs, 25 kHz channel spacing, paired with 1270.000-1276.000 |
| 1288.000- 1294.000 | Various | Broadband Experimental, Simplex ATV |
| 1290.000- 1294.000 | FM, digital | Repeater outputs, 25 kHz channel spacing, paired with 1270.000-1274.000 (Regional option) |
| 1294.000- 1295.000 | FM | FM simplex |
| | FM | National FM simplex calling frequency 1294.500 |
| 1295.000- 1297.000 | | Narrow Band Segment |

| | | |
|-----------------------|------------------|------------------------------------|
| 1295.000- 1295.800 | Various | Narrow Band Image, Experimental |
| 1295.800- 1296.080 | CW, SSB, digital | EME |
| 1296.080- 1296.200 | CW, SSB | Weak Signal |
| | CW, SSB | CW, SSB calling frequency 1296.100 |
| 1296.200- 1296.400 | CW, digital | Beacons |
| 1296.400- 1297.000 | Various | General Narrow Band |
| 1297.000- 1300.000 | Digital | |

Note: The need to avoid harmful interference to FAA radars may limit amateur use of certain frequencies in the vicinity of the radars.

13 Centimeters (2300-2310 and 2390-2450 MHz)

| Frequency Range | Emission Bandwidth | Functional Use |
|-----------------------|--------------------|--|
| 2300.000- 2303.000 | 0.05 - 1.0 MHz | Analog & Digital, including full duplex; paired with 2390 - 2393 |
| 2303.000- 2303.750 | < 50 kHz | Analog & Digital; paired with 2393 - 2393.750 |
| 2303.75- 2304.000 | | SSB, CW, digital weak-signal |

| | | |
|-----------------------|--------------------|--|
| 2304.000- 2304.100 | 3 kHz or less | Weak Signal EME Band |
| 2304.10- 2304.300 | 3 kHz or less | SSB, CW, digital weak-signal (Note 1) |
| 2304.300- 2304.400 | 3 kHz or less | Beacons |
| 2304.400- 2304.750 | 6 kHz or less | SSB, CW, digital weak-signal & NBFM |
| 2304.750- 2305.000 | < 50 kHz | Analog & Digital; paired with 2394.750 - 2395 |
| 2305.000- 2310.000 | 0.05 - 1.0 MHz | Analog & Digital, paired with 2395 - 2400 (Note 2) |
| 2310.000-2390.000 | NON-AMATEUR | |
| 2390.000- 2393.000 | 0.05 - 1.0 MHz | Analog & Digital, including full duplex; paired with 2300-2303 |
| 2393.000- 2393.750 | < 50 kHz | Analog & Digital; paired with 2303 - 2303.750 |
| 2393.750- 2394.750 | | Experimental |
| 2394.750- 2395.000 | < 50 kHz | Analog & Digital; paired with 2304.750 - 2305 |
| 2395.000- 2400.000 | 0.05 - 1.0 MHz | Analog & Digital, including full duplex; paired with 2305-2310 |
| 2400.000- 2410.000 | 6 kHz or less | Amateur Satellite Communications |

2410.000- 22 MHz max. Broadband Modes (Notes 3, 4)
2450.000

Notes:

1: 2304.100 is the National Weak-Signal Calling Frequency

2: 2305 - 2310 is allocated on a primary basis to Wireless Communications Services (Part 27). Amateur operations in this segment, which are secondary, may not be possible in all areas.

3: Broadband segment may be used for any combination of high-speed data (e.g. 802.11 protocols), Amateur Television and other high-bandwidth activities. Division into channels and/or separation of uses within this segment may be done regionally based on needs and usage.

4: 2424.100 is the Japanese EME transmit frequency

Note: The following band plans were adopted by the ARRL Board of Directors in July 1988

3300-3500 MHz

| Level I - Major Band Divisions | | | Level II - Sub-Band Divisions | | | Level III | Suggested | Suggested | |
|--------------------------------|----------|-------|-------------------------------|----|-------|----------------|---|---------------|--|
| Frequency Range (MHz) | | | Frequency Range (MHz) | | | Specific Freq. | Emission Types | Emission B.W. | Functional Use |
| From | To | Width | From | To | Width | MHz | (Note 1) | (Note 1) | |
| 3300.000 | 3309.000 | 9.0 | | | | | Analog & Digital, including Full Duplex | 0.1 - 1.0 MHz | Analog & Digital; paired with 3430.0-3439.0; 130 MHz Split |
| 3309.000 | 3310.000 | 1.0 | | | | | | | Experimental |
| 3310.000 | 3330.000 | 20.0 | | | | | Analog & Digital, including Full Duplex | >1.0 MHz | Analog & Digital; paired with 3410.0-3430.0; 100 MHz Split |
| 3330.000 | 3332.000 | 2.0 | | | | | | | Experimental |
| 3332.000 | 3339.000 | 7.0 | | | | | | | RADIO ASTRONOMY PROTECTED BAND (Note 4) |
| 3339.000 | 3345.800 | 6.8 | | | | | Analog & Digital, including Full Duplex | 0.1 - 1.0 MHz | Analog & Digital; paired with 3439.0-3445.8; 100 MHz Split |
| 3345.800 | 3352.500 | 6.7 | | | | | | | RADIO ASTRONOMY |

| | | | | | |
|----------|----------|------------------------|---|---|--|
| | | | PROTECTED BAND (Note 4) | | |
| 3352.500 | 3355.000 | 2.5 | Analog & Digital, including Full Duplex | 0.05 - 0.2 MHz | Analog & Digital; paired with 3452.5-3455.0; 100 MHz Split |
| 3355.000 | 3357.000 | 2.0 | Experimental | | |
| 3357.000 | 3360.000 | 3.0 | Analog & Digital, including Full Duplex | 50 kHz or less | Analog & Digital; paired with 3457.0-3460.0 |
| 3360.000 | 3400.000 | 40.0 | OFDM, others | 22 MHz max. | Broadband Modes (Note 3) |
| | | 3360.000 3380.000 20.0 | ATV | Amateur Television of all authorized modulation standards/formats at local option | |
| 3400.000 | 3410.000 | 10.0 | CW, SSB, NBFM | 6 kHz or less | Amateur Satellite Communications |
| | | 3400.000 3400.300 0.3 | CW, SSB, Digital | 3 kHz or less | Weak Signal EME Band |
| | | 3400.300 3401.000 0.7 | CW, SSB, Digital | 3 kHz or less | Terrestrial Weak Signal Band - Future (Note 2) |
| | | 3400.100 | CW, SSB, Digital | EME Calling Frequency | |
| 3410.000 | 3430.000 | 20.0 | Analog & Digital, including Full Duplex | >1.0 MHz | Analog & Digital; paired with 3310.0-3330.0; 100 MHz Split |
| 3430.000 | 3439.000 | 9.0 | Analog & Digital, including Full Duplex | 0.1 - 1.0 MHz | Analog & Digital; paired with 3300.0-3309.0; 130 MHz Split |
| 3439.000 | 3445.800 | 6.8 | Analog & Digital, including Full Duplex | 0.1 - 1.0 MHz | Analog & Digital; paired with 3339.0-3345.8; 100 MHz Split |
| 3445.800 | 3452.500 | 6.7 | Experimental | | |
| | | | Analog & Digital, | Analog & Digital; paired | |

| | | | | | | |
|----------|----------|----------|----------|---|-----------------|---|
| 3452.500 | 3455.000 | 2.5 | | including Full Duplex | 0.05 - 0.2 MHz | with 3352.5-3355.0; 100 MHz Split |
| 3455.000 | 3455.500 | 0.5 | | | 100 kHz or less | Crossband linear translator (input or output) |
| 3455.500 | 3457.000 | 1.5 | | CW, SSB, NBFM, Digital | 6 kHz or less | Terrestrial Weak Signal Band - Legacy (Note 2) |
| | | | 3456.100 | | 6 kHz or less | Weak Signal Terrestrial Calling Frequency |
| | 3456.300 | 3457.000 | 0.1 | CW, Digital | 1 kHz or less | Propagation Beacons |
| 3457.000 | 3460.000 | 3.0 | | Analog & Digital, including Full Duplex | 50 kHz or less | Analog & Digital; paired with 3357.0-3360.0; 100 MHz Split |
| 3460.000 | 3500.000 | 40.0 | | OFDM, others | 22 MHz max. | Broadband Modes (Note 3) |
| | 3460.000 | 3480.000 | 20.0 | ATV | | Amateur Television of all authorized modulation standards/formats at local option |

Note 1 – Includes all other emission modes authorized in the 9 cm amateur band whose necessary bandwidth does not exceed the suggested bandwidths listed.

Note 2 – Weak Signal Terrestrial legacy users are encouraged to move to 3400.3 to 3401.0 MHz as time and resources permit.

Note 3 – Broadband segments may be used for any combination of high-speed data (e.g. 802.11 protocols), Amateur Television and other high-bandwidth activities. Division into channels and/or separation of uses within these segments may be done regionally based on need and usage.

Note 4 – Per ITU RR 5.149 from WRC-07, these band segments are also used for Radio Astronomy. Amateur use of these frequencies should be first coordinated with the National Science Foundation (esm@nsf.gov).

5 Centimeters (5650.0-5925.0 MHz)

| Frequency Range | Emission Bandwidth | Functional Use |
|------------------------|-----------------------------|--|
| 5650.0-5670.0 | | Amateur Satellite; Up-Link Only |
| 5650.0-5675.0 | 0.05 - 1.0 MHz | Experimental |
| 5675.0-5750.0 | ≥ 1.0 MHz | Analog & Digital; paired with 5850-5925 MHz (Note 2) |
| 5750.0-5756.0 | ≥ 25 kHz and < 1 MHz | Analog & Digital; paired with 5820-5826 MHz |
| 5756.0-5759.0 | ≤ 50 kHz | Analog & Digital; paired with 5826-5829 MHz |
| 5759.0-5760.0 | < 6 kHz | SSB, CW, Digital Weak-Signal |
| 5760.0-5760.1 | < 3 kHz | EME |
| 5760.1-5760.3 | < 6 KHz | SSB, CW, Digital Weak-Signal (Note 1) |
| 5760.3-5760.4 | < 3 KHz | Beacons |
| 5760.4-5761.0 | < 6 KHz | SSB, CW, Digital Weak-Signal |
| 5761.0-5775.0 | ≤ 50 kHz | Experimental |
| 5775.0-5800.0 | ≥ 100 kHz | Experimental |
| 5800.0-5820.0 | | Experimental |
| 5820.0-5826.0 | ≥ 25 kHz and < 1 MHz | Analog & Digital; paired with 5750-5756 MHz |
| 5826.0-5829.0 | ≤ 50 kHz | Analog & Digital; paired with 5756-5759 MHz |
| 5829.0-5850.0 | 0.05-1.0 MHz | Experimental |

| | | |
|---------------|-----------|--|
| 5830.0-5850.0 | | Amateur Satellite; Down-Link Only |
| 5850.0-5925.0 | >=1.0 MHz | Analog & Digital; paired with 5675-5750 MHz (Note 2) |

Note 1: 5760.1 is the National Weak-Signal Calling Frequency

Note 2: Broadband segment may be used for any combination of high-speed data (eg: 802.11 protocols), Amateur Television and other high-bandwidth activities. Division into channels and/or separation of uses within this segment may be done regionally based on needs and usage.

3 Centimeters (10000.000-10500.000 MHz)

| Frequency Range | Emission Bandwidth | Functional Use |
|----------------------|---------------------|--|
| 10000.00 - 10050.000 | | Experimental |
| 10050.000-10100.000 | <=100 kHz | Analog & Digital; paired with 10300-10350 |
| 10100.000-10115.000 | >=25 kHz and <1 MHz | Analog & Digital; paired with 10350-10365 |
| 10115.000-10117.000 | <=50 kHz | Analog & Digital; paired with 10365-10367 |
| 10117.000-10120.000 | | Experimental |
| 10120.000-10125.000 | <=50 kHz | Analog & Digital; paired with 10370-10375 |
| 10125.000-10200.000 | >=1 MHz | Analog & Digital; paired with 10375-10450 (Note 2) |
| 10200.000-10300.000 | | Wideband Gunnplexers |
| 10300.000-10350.000 | <=100 kHz | Analog & Digital; paired with 10050-10100 |
| 10350.000-10365.000 | >=25 kHz and <1 MHz | Analog & Digital; paired with 10100-10115 |
| 10365.000-10367.000 | <=50 kHz | Analog & Digital; paired with 10115-10117 |
| 10367.000-10368.300 | 6 kHz or less | SSB, CW, Digital Weak-Signal & NBFM (Note 1) |
| 10368.300-10368.400 | 6 kHz or less | Beacons |
| 10368.400-10370.000 | 6 kHz or less | SSB, CW, Digital Weak-Signal & NBFM |
| 10370.000-10375.000 | <=50 kHz | Analog & Digital; paired with 10120-10125 |
| 10375.000-10450.000 | >=1 MHz | Analog & Digital; paired with 10125-10200 (Note 2) |
| 10450.000-10500.000 | | Space, Earth & Telecommand Stations |

Note 1: 10368.100 is the National Weak-Signal Calling Frequency

Note 2: Broadband segment may be used for any combination of high-speed data (eg: 802.11 protocols), Amateur Television and other high-bandwidth activities. Division into channels and/or separation of uses within this segment may be done regionally based on needs and usage.

Above 10.50 GHz*

All modes and licensees (except Novices) are authorized Amateur Bands above 10.5 GHz.

* US amateurs must check Sections 97.301, 97.303, 97.305 and 97.307 for sharing requirements before operating.

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