LF/MF

2,200 Meters (LF)	135.7 - 137.8
630 Meters (MF)	472 - 479 kHz

MODES	EXTRA • ADVANCED • GENERAL
CW/Phone/Image/Data (LF)	135.7 - 137.8
CW/Phone/Image/Data (LF)	472 - 479

2,200 Meter - 1 W EIRP Maximum 630 Meters - 5 W EIRP Maximum, except in Alaska within 496 miles of Russia where power limit is 1 W EIRP.

HF

160 Meters 1.800 - 2.000

MODES	EXTRA • ADVANCED • GENERAL
CW/Phone/Image/Data	1.800 - 2.000

PLANS	
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

1.900-2.000 Avoid QRM to radiolocation ops.

80/75 Meters 3.500 - 4.000

MODES	
EXTRA	
CW/RTTY/Data	3.500 - 3.600
CW/Phone/Image	3.600 - 4.000
ADVANCED	
CW/RTTY/Data	3.525 - 3.600
CW/Phone/Image	3.700 - 4.000
GENERAL	
CW/RTTY/Data	3.525 - 3.600
CW/Phone/Image	3.800 - 4.000
TECHNICIAN • NOVICE	
CW (200w Max PEP)	3.525 - 3.600

PLANS	
3.500 - 3.510	CW DX Window
3.560	QRP CW Calling Freq.
3.570 - 3.600	RTTY/Data
3.585 - 3.600	Auto Cont. Data Station
3.590	RTTY/Data DX
3.790 - 3.800	DX Window
3.845	SSTV
3.885	AM Calling Freq.
3.985	QRP SSB Calling Freq.

60 Meters Channelized

EXTRA • ADVANCED • GENERAL

CHANNELS	Tuning Frequency	Channel Center
	5.330.50	5.332.00
	5.346.50	5.348.00
	5.357.00	5.358.50
	5.371.50	5.373.00
	5.403.50	5.405.00

Max Power 100 Watts ERP/PEP • USB - 2.8 kHz Wide
CW/RTTY/PSK31/ect. 1.5 kHz above Tuning Frequency

40 Meters 7.000 - 7.300

MODES	
EXTRA	
CW/RTTY/Data	7.000 - 7.125
CW/Phone/Image	7.125 - 7.300
ADVANCED	
CW/RTTY/Data	7.025 - 7.125
CW/Phone/Image	7.125 - 7.300
GENERAL	
CW/RTTY/Data	7.025 - 7.125
CW/Phone/Image	7.175 - 7.300
TECHNICIAN • NOVICE	
CW (200w Max PEP)	7.025 - 7.125

PLANS	
7.030	QRP CW Calling Freq.
7.040	RTTY/Data DX
7.080 - 7.125	RTTY/Data
7.080.15	PSK31
7.100 - 7.105	Auto Cont. Data Station
7.141	SSTV
7.285	QRP SSB Calling Freq.
7.290	AM Calling Freq.

30 Meters 10.100 - 10.150

MODES	EXTRA • ADVANCED • GENERAL
CW & Data Only (200w Max PEP)	10.100 - 10.150

PLANS	
10.106	CW
10.130 - 10.140	RTTY/Data
10.140 - 10.150	Auto Cont. Data Station

Avoid QRM to fixed services outside the US

Band limits are to be folloed according to the operator's license class privileges. Operarots must stay within the band edges providing enough room for transmitting mode bandwidth. 1500 Watts PEP (Peak Envelope Power) output is allowed to all non-Novice unless otherwise noted. Please stay within FCC section 97 guidelines. The lower Band Plan descriptions, through considered a Gentleman's Agreement are to be followed as good Amateur Practice. Ensure proper usage of each frequency and band before operating.

20 Meters 14.000 - 14.350

MODES	
EXTRA	
CW/RTTY/Data	14.000 - 14.150
CW/Phone/Image	14.150 - 14.350
ADVANCED	
CW/RTTY/Data	14.025 - 14.150
CW/Phone/Image	14.175 - 14.350
GENERAL	
CW/RTTY/Data	14.025 - 14.150
CW/Phone/Image	14.225 - 14.350

PLANS	
14.070.15	PSK31
14.100	IBP/NCDXF Beacons
14.100.50 - 14.112	Auto Cont. Data Station
14.230	SSTV
14.285	QRP SSB Calling Freq.
14.286	AM Calling Freq.

17 Meters 18.068 - 18.168

MODES	EXTRA • ADVANCED • GENERAL
CW/RTTY/Data	18.068 - 18.110
CW /Phone/Image	18.110 - 18.168

PLANS	
18.100 - 18.105	RTTY/Data
10.105 - 18.110	Auto Cont. Data Station
18.110	IBP/NCDXF Beacons

15 Meters 21.000 - 21.450

MODES	
EXTRA	
CW/RTTY/Data	21.000 - 21.200
CW/Phone/Image	21.200 - 21.450
ADVANCED	
CW/RTTY/Data	21.025 - 21.200
CW/Phone/Image	21.225 - 21.450
GENERAL	
CW/RTTY/Data	21.025 - 21.200
CW/Phone/Image	21.275 - 21.450
TECHNICIAN • NOVICE	
CW (200w Max PEP)	21.025 - 21.200

PLANS	
21.060	QRP CW Calling Freq.
21.070 - 21.110	RTTY/Data
21.090 - 21.100	Auto Cont. Data Station
21.150	IBP/NCDXF Beacons
21.340	SSTV
21.385	QRP SSB Calling Freq.

NAME:_____

CALL SIGN:_____

12 Meters 24.890 - 24.990

MODES	EXTRA • ADVANCED • GENERAL
CW/RTTY/Data	24.890 - 24.930
CW /Phone/Image	24.930 - 24.990

PLANS	
24.920 - 24.930	RTTY/Data
24.925 - 24.930	Auto Cont. Data Station
24.930	IBP/NCDXF Beacons

10 Meters 28.000 - 29.700

MODES	EXTRA • ADVANCED • GENERAL
CW/RTTY/Data	28.000 - 28.300
CW /Phone/Image	28.300 - 29.700
TECHNICIAN • NOVICE (200w Max PEP)	
CW/RTTY/Data	28.000 - 28.300
Phone Only	28.300 - 28.500

PLANS	
28.060	QRP CW Calling Freq.
28.070 - 28.120	RTTY/Data
28.120 - 28.189	Auto Cont. Data Station
28.190 - 28.225	Beacons
28.200	IBP/NCDXF Beacons
28.385	QRP SSB Calling Freq.
28.680	SSTV
29.000 - 29.200	AM
29.300 - 29.510	Satellite Downlinks
29.520 - 29.580	Repeater Inputs
29.600	FM Simplex
29.600 - 29.700	FM
29.620 - 29.680	Repeater Outputs

RST - Signal Reports

#	Readability	Strength
1	Unreadable	Faint signals, barley perceptible
2	Barely readable, occasional words distinguishable	Very weak signals
3	Readable with considerable difficulty	Weak signals
4	Readable with practically no difficulty	Fair signals
5	Perfectly Readable	Fairly good signals
6	N/A	Good signals
7	N/A	Moderately strong signal
8	N/A	Strong signal
9	N/A	Extremely strong signals

#	Tone
1	Sixty cycles a.c or less, very rough and broad
2	Very rough a.c., very harsh and broad
3	Rough a.c. tone, rectified but not filtered
4	Rough note, some tracing of filtering
5	Filtered rectified a.c. but strongly ripple-modulated
6	Filtered tone, definite trace of ripple modulation
7	Near pure tone, trace of ripple modulation
8	Near perfect tone, slight trace of modulation
9	Perfect tone,no trace of ripple or modulation of any kind

BASED ON US AMATEUR RADIO BANDS ARRL SHEET DATED 9-22-2017 -

Q-signals : QRG = What is your Frequency? QRL= Busy? QRM= Interferance 1) Nil 2) Slight 3)Moderately 4)Severly 5) Extremely
QRN= Static (1 to 5 based on QRM) QRO=Increase Power QRP=Decrease Power QRQ=Send faster ___wpm QRS=Send slower ___wpm QRT=Stop sending
QRU= Nothing for you, you for me? QRV=Ready? QRX=Will call again *TIME* and *Freq.* QRZ=Will/Who is calling *ID* and *Freq.* QSB=Signals are fading
QSK=Can hear you between signals, break in? QSL=Acknowledging QSO=Communicate with_____direct or rely thru _____ QSP=Will relay to_____
QST=General call preceding message QSX=Listening to ____ on ____kHz QSY=Chg, trans. To ___kHz QTC=Have message QTH=My location QTR=Time is_____ QYL=Wife / Spouse

A-Alfa | B-Bravo | C-Charlie | D-Delta | E-Echo | F-Foxtrot | G-Golf | H-Hotel | I-India | J-Juliet | K-Kilo | L-Lima | M-Mike
N-November | O-Oscar | P-Papa | Q-Quebec | R-Romeo | S-Sierra | T-Tango | U-Uniform | V-Victor | W-Whiskey | X-Xray | Y-Yankee | Z-Zulu

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VHF

6 Meters 50.00 - 54.00

EXTRA•ADVANCED•GENERAL•TECHNICIAN

MODES	
CW Only	50.00 - 50.10
All Modes	50.10 - 54.00

PLANS	
50.00 -50.10	CW, Beacons
50.06 - 50.08	Beacon Subband
50.10 -50.30	SSB, CW
50.10 -50.125	DX Window
50.125	SSB National Calling Freq.
50.30 -50.60	All Modes
50.60 -50.80	Nonvoice Communications
50.62	Digital (Packet) Calling
50.80 -51.00	Radio Remote Cont. (20kHz Chan.)
51.00 -51.10	Pacific DX Window
51.12 -51.48	Repeater Inputs (19 Channels)
51.12 -51.18	Digital Repeater Inputs
51.62 -51.98	Repeater Outputs (19 Channels)
51.62 -51.68	Digital Repeater Outputs
52.00 -52.48	Repeater Inputs (23 Channels)
52.02 -52.04	FM Simplex
52.20	Test Pair (Input)
52.50 -52.98	Repeater Outputs (23 Channels)
52.525	FM Simplex / Natl. Calling Freq.
52.54	Secondary FM Simplex
52.70	Test Pair (Output)
53.00 - 53.48	Repeater Inputs (19 Channels)
53.00	Remote Base FM Simplex
53.02	Simplex
53.10, 53.20, 53.30, 53.40	Radio Remote Control
53.50 - 53.98	Repeater Inputs (19 Channels)
53.50, 53.60, 53.70, 53.80	Radio Remote Control
53.52 - 53.90	Simplex

MORSE CODE REFERENCE

2 Meters 144.00 - 148.00

EXTRA•ADVANCED•GENERAL•TECHNICIAN

MODES	
CW Only	144.00 - 144.10
All Modes	144.10 - 148.00

PLANS	
144.00 - 144.05	EME (CW)
144.05 - 144.10	General CW / Weak Signals
144.10 - 144.20	EME / Weak-Signal SSB
144.200	SSB National Calling Freq.
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 Reapeater Inputs
144.90 - 145.10	Weak Signal / FM Simplex
145.01,03,05,07,09	Packet
145.10 - 145.20	Linear Translator Outputs
145.20 - 145.50	FM Reapeater Outputs
145.50 - 145.80	Miscellaneous / Experimental
145.80 - 146.00	OSCAR Subband
146.01 - 146.37	Repeater Inputs
146.40 - 146.58	Simplex
146.52	FM National Calling Freq.
146.61 - 146.97	Repeater Outputs
147.00 - 147.39	Repeater Outputs
147.42 - 147.57	Simplex
147.60 - 147.99	Repeater Inputs

1.25 Meters 222.00 - 225.00

PLANS	
219.00 - 220.00	Fixed Digital Message Forwarding
222.00 - 222.15	Weak-Signal Modes
222.00 - 222.025	EME
222.05 - 222.06	Propagation Beacons
222.10	SSB/CW Natl. Calling Freq.
222.10 - 222.15	Weak-Signal CW & SSB
222.15 - 222.25	Local Coordinator's Option: Weak Signal, ACSB, Repeater Inputs, Control
222.25 - 222.38	FM Reapeater Inputs Only
223.40 - 223.52	FM Simplex
223.50	FM National Calling Freq.
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

Novice - 25 w PEP

AMATEUR RADIO ANTENNA LENGTH CHART

	FREQUENCY (Mhz)	1/4λ (Feet)	1/2λ (Feet)	1λ (Feet)	1/2λ Inv Vee 90° (Feet)
160 METERS	1.800	130' 0"	260' 0"	558' 4"	257' 5"
	1.850	126' 6"	253' 0"	543' 3"	250' 5"
	1.900	123' 2"	246' 4"	528' 11"	243' 10"
	2.000	117' 0"	234' 0"	502' 6"	231' 8"
80 METERS	3.500	66' 10"	133' 9"	287' 2"	132' 5"
	3.750	62' 5"	124' 10"	268' 0"	123' 7"
	3.900	60' 0"	120' 0"	257' 8"	118' 10"
	4.000	58' 6"	117' 0"	251' 3"	115' 10"
40 METERS	7.000	33' 5"	66' 10"	143' 7"	66' 2"
	7.150	32' 9"	65' 5"	140' 7"	64' 10"
	7.300	32' 1"	64' 1"	137' 8"	63' 6"
30 METERS	10.100	23' 2"	46' 4"	99' 6"	45' 10"
	10.150	23' 1"	46' 1"	99' 0"	45' 8"
20 METERS	14.000	16' 9"	33' 5"	71' 9"	33' 1"
	14.150	16' 6"	33' 1"	71' 0"	32' 9"
	14.300	16' 4"	32' 9"	70' 3"	32' 5"
	14.350	16' 4"	32' 7"	70' 0"	32' 3"
17 METERS	18.068	12' 11"	25' 11"	55' 7"	25' 8"
	18.168	12' 11"	25' 9"	55' 4"	25' 6"
15 METERS	21.000	11' 2"	22' 3"	47' 10"	22' 1"
	21.200	11' 0"	22' 1"	47' 5"	21' 10"
	21.450	10' 11"	21' 10"	46' 10"	21' 7"
12 METERS	24.890	9' 5"	18' 10"	40' 5"	18' 7"
	24.990	9' 4"	18' 9"	40' 3"	18' 6"
10 METERS	28.000	8' 4"	16' 9"	35' 11"	16' 7"
	28.500	8' 3"	16' 5"	35' 3"	16' 3'
	29.700	7' 11"	15' 9"	33' 10"	15' 7"
6 METERS	50.000	4' 8"	9' 4"	20' 1'	9' 3"
	54.000	4' 4"	8' 8"	18' 7"	8' 7"
2 METERS	144.000	1' 8"	3' 3"	7' 0"	3' 3"
	148.000	1' 7"	3' 2"	6' 9"	3' 2"

UHF

70 Centimeters 420.00 - 450.00

PLANS	
420.00 - 426.00	ATV Reptr., Simplex & Experimental with 421.250-MHz video carrier control links
426.00 - 432.00	ATV Simplex with 427.250-MHz video carrier carrier freq.
432.00 - 432.07	EME (Earth-Moon-Earth)
432.07 - 432.10	Weak Signal CW
432.10	SSB National Calling Freq.
432.10 - 432.30	Mixed-Mode / Weak-Signal Work
432.30 - 432.40	Propagation Beacons
432.40 - 433.00	Mixed-Mode / Weak-Signal Work
433.00 - 435.00	Auxiliary / Repeater Links
435.00 - 438.00	Satillite Only (International)
438.00 - 444.00	ATV Repeater Input with 439.250-MHz carrier freq. & repeater links
442.00 - 445.00	Reptr. Inputs/Outputs (Local Opt.)
445.00 - 447.00	Local Option: Shared by Auxiliary, Control Link, Repeater & Simplex
446.00	FM National Simplex Freq.
447.00 - 450.00	Reptr. Inputs/Outputs (Local Opt.)

33 Centimeters 902.00 - 928.00

PLANS	
902 - 903	Narrow-Bandwidth, Weak-Signal
902.0 - 902.8	SSTV, FAX, ACSSB, Experimental
902.1	Weak-Signal Calling Freq.
902.8 - 903.0	Reserved for EME, CW Expansion
903.1	Alternate Calling Freq.
903.0 - 906.0	Digital Communications
906 - 909	FM Reapeater Inputs
909 - 915	ATV
915 - 918	Digital Communications
918 - 921	FM Reapeater Outputs
921 - 927	ATV
927 - 928	FM Simplex and Links

NAME:_____

CALL SIGN:_____

23 Centimeters 1240.0 - 1300.0

PLANS	
1240 - 1246	ATV #1
1246 - 1248	Narrow-Bandwidth FM Point-To-Point Links and Digital, Duplex with 1258 - 1260
1248 - 1258	Digital Communications
1252 - 1258	ATV #2
1258 - 1260	Narrow-Bandwidth FM Point-To-Point Links and Digital, Duplex with 1246 - 1252
1260 - 1270	Satillite Uplinks, Ref. WARC '79
1260 - 1270	Wide-Bandwidth Exp., Simplex ATV
1270 - 1276	Repeater Inputs, FM and linear, Paired with 1282-1288, 239 Pairs Every 25 kHz, e.g. 1270.025, .050, ect.
1271 - 1283	Non-Coordinated Test Pair
1276 - 1282	ATV #3
1282 - 1288	Repeater Outputs, Paired with 1270-1276
1288 - 1294	Wide-Bandwidth Experimental, Simplex ATV
1294 - 1295	Narrow-Bandwidth FM Simplex Services 25kHz channel
1294.5	FM National Calling Freq.
1295 - 1297	Narrow-Bandwidth Weak-Signal (No FM)
1295.0 - 1295.8	SSTV, FAX, ACSSB, Experimental
1295.8 - 1296.0	Reserved fpr EME, CW Expansion
1296.00 - 1296.05	EME-Exclusive
1296.07 - 1296.08	CW Beacon
1296.1	CW, SSB National Calling Freq.
1296.4 - 1296.6	Crossband Linear Translator Input
1296.6 - 1296.8	Crossband Linear Translator Output
1296.8 - 1297.0	Experimental Beacons (Exclusive)
1297 - 1300	Digital Communications

ADDITIONAL BANDS

All Classes Except Novice

2300-2310	MHz
2390-2450	MHz
3300-3500	MHz
5650-5925	MHz
10.0-10.5	GHz
24.0-24.25	GHz
47.0-47.2	GHz
76.0-81.0	GHz
122.25-123.0	GHz
134-141	GHz
241-250	GHz
275+	GHz

QUARTER WAVE DIPOLE

Length in feet = 234 / Frequency in MHz

HALF WAVE DIPOLE

Length in feet = 468 / Frequency in MHz

FULL WAVE

Length in inches = 1005 / Frequency in MHz

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