

# Communicating with Other Hams

## Contact Basics: Good Amateur Practices

### Q-Signals

Q-signals are a system of radio shorthand as old as wireless and developed from even older telegraphy codes. Q-signals are a set of abbreviations for common information that save time and allow communication between operators who don't speak a common language. Modern ham radio uses them extensively. The table below lists the most common Q-signals used by hams. While Q-signals were developed for use by Morse operators, their use is common on phone, as well. You will often hear, "QRZed?" as someone asks "Who is calling me?" or "I'm getting a little QRM" from an operator receiving some interference or "Let's QSY to 146.55" as two operators change from a repeater frequency to a nearby simplex communications frequency.

Q-Signals	
Abbr.	Questions
QRG	Your exact frequency (or that of _____) is _____ kHz. Will you tell me my exact frequency (or that of _____)?
QRL	I am busy (or I am busy with _____). Are you busy? Usually used to see if a frequency is busy.
QRM	Your transmission is being interfered with _____. (1. Nil; 2. Slightly; 3. Moderately; 4. Severely; 5. Extremely.) Is my transmission being interfered with?
QRN	I am troubled by static _____. (1 to 5 as under QRM.) Are you troubled by static?
QRO	Increase power. Shall I increase power?
QRP	Decrease power. Shall I decrease power?
QRQ	Send faster (_____ wpm). Shall I send faster?
QRS	Send more slowly (_____ wpm). Shall I send more slowly?
QRT	Stop sending. Shall I stop sending?
QRU	I have nothing for you. Have you anything for me?
QRV	I am ready. Are you ready?
QRX	I will call you again at _____ hours (on _____ kHz). When will you call me again? Minutes are usually implied rather than hours.
QRZ	You are being called by _____ (on _____ kHz). Who is calling me?
QSB	Your signals are fading. Are my signals fading?
QSK	I can hear you between signals; break in on my transmission. Can you hear me between your signals and if so can I break in on your transmission?
QSL	I am acknowledging receipt. Can you acknowledge receipt (of a message or transmission)?
QSO	I can communicate with _____ direct (or relay through _____). Can you communicate with _____ direct or by relay?
QSP	I will relay to _____. Will you relay to _____?
QST	General call preceding a message addressed to all amateurs and ARRL members. This is in effect "CQ ARRL."
QSX	I am listening to _____ on _____ kHz. Will you listen to _____ on _____ kHz?
QSY	Change to transmission on another frequency (or on _____ kHz). Shall I change to transmission on another frequency (or on _____ kHz)?
QTC	I have _____ messages for you (or for _____). How many messages have you to send?
QTH	My location is _____. What is your location?
QTR	The time is _____. What is the correct time?

ITU Phonetic Alphabet		
Letter	Word	Pronunciation
A	Alfa	<b>AL</b> FAH
B	Bravo	<b>BRAH</b> VOH
C	Charlie	<b>CHAR</b> LEE
D	Delta	<b>DELL</b> TAH
E	Echo	<b>ECK</b> OH
F	Foxtrot	<b>FOKS</b> TROT
G	Golf	GOLF
H	Hotel	HOH <b>TELL</b>
I	India	<b>IN</b> DEE AH
J	Juliet	<b>JEW</b> LEE ETT
K	Kilo	<b>KEY</b> LOH
L	Lima	<b>LEE</b> MAH
M	Mike	MIKE
N	November	NO <b>VEM</b> BER
O	Oscar	<b>OSS</b> CAH
P	Papa	PAH <b>PAH</b>
Q	Quebec	KEH <b>BECK</b>
R	Romeo	<b>ROW</b> ME OH
S	Sierra	SEE <b>AIR</b> RAH
T	Tango	TANG GO
U	Uniform	<b>YOU</b> NEE FORM
V	Victor	<b>VIK</b> TAH
W	Whiskey	<b>WISS</b> KEY
X	X-Ray	<b>ECKS</b> RAY
Y	Yankee	<b>YANG</b> KEY
Z	Zulu	<b>ZOO</b> LOO

**Note:** The **boldfaced** syllables are emphasized. The pronunciations shown in this table were designed for those who speak any of the international languages. The pronunciations given for "Oscar" and "Victor" may seem awkward to English-speaking people in the US.

# US Amateur Radio Technician Privileges

This chart shows privileges and band plan recommendations for each of the frequencies, as granted by the FCC to the Technician licensee. It is good amateur practice to follow the band plan established by the Amateur Radio community. The band plan is developed so that spectrum allocated for our use is used most effectively. You'll find a complete description of the band plan online at [www.arrl.org/band-plan](http://www.arrl.org/band-plan).

Published by:  
**ARRL** The national association for  
**AMATEUR RADIO®**  
[www.arrl.org](http://www.arrl.org)



**Effective Date March 5, 2012**

## UHF

(1500 Watts PEP maximum)

### 23 cm

(1240-1300 MHz)



### 33 cm

(902-928 MHz)



### 70 cm

(420-450 MHz)



## VHF

(1500 Watts PEP maximum)

### 1.25 m

(219-220 and 222-224 MHz)



### 2 m

(144-148 MHz)



### 6 m

(50-54 MHz)



## HF

(200 Watts PEP maximum)

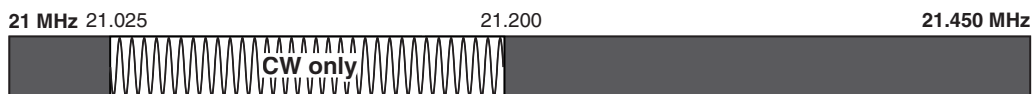
### 10 m

(28.0-29.7 MHz)



### 15 m

(21.0-21.45 MHz)



### 40 m

(7.0-7.3 MHz)



### 80 m

(3.5-4.0 MHz)



These frequencies are not available to Technician licensees

#### Notes:

Technician Licenses may use up to 1500 Watts PEP on the VHF and higher bands, but are limited to 200 Watts on the HF bands.

You also have privileges to explore these microwave bands with CW, Digital, SSB, AM, FM and TV:

2300-2310 MHz  
47.0-47.2 GHz

2390-2450 MHz  
76.0-81.0 GHz

3300-3500 MHz  
122.25-123.0 GHz

5650-5925 MHz  
134-141 GHz

10.0-10.5 GHz  
241-250 GHz

24.0-24.25 GHz  
All above 275 GHz

rev. 10-24-12

# The Considerate Operator's Frequency Guide

**A guide to where on the HF bands various modes and activities are generally found. All frequencies are in MHz.**

The following frequencies are generally recognized for certain modes or activities (all frequencies are in MHz).

Nothing in the rules recognizes a net's, group's or any individual's special privilege to any specific frequency. Section 97.101(b) of the Rules states that "Each station licensee and each control operator must cooperate in selecting transmitting channels and in making the most effective use of the amateur service frequencies. No frequency will be assigned for the exclusive use of any station." No one "owns" a frequency.

It's good practice — and plain old common sense — for any operator, regardless of mode, to check to see if the frequency is in use prior to engaging operating. If you are there first, other operators should make an effort to protect you from interference to the extent possible, given that 100% interference-free operation is an unrealistic expectation in today's congested bands.

Frequencies	Modes/Activities
1.800-2.000	CW
1.800-1.810	Digital
1.810	QRP CW calling frequency
1.843-2.000	SSB, SSTV and other wideband modes
1.910	SSB QRP
1.995-2.000	Experimental
1.999-2.000	Beacons
3.500-3.510	CW DX window
3.560	QRP CW calling frequency
3.570-3.600	RTTY/Data
3.585-3.600	Automatically controlled data stations
3.590	RTTY/Data DX
3.790-3.800	DX window
3.845	SSTV
3.885	AM calling frequency
3.985	QRP SSB calling frequency
7.030	QRP CW calling frequency
7.040	RTTY/Data DX
7.080-7.125	RTTY/Data
7.100-7.105	Automatically controlled data stations
7.171	SSTV
7.285	QRP SSB calling frequency
7.290	AM calling frequency
10.106	QRP CW calling frequency
10.130-10.140	RTTY/Data
10.140-10.150	Automatically controlled data stations
14.060	QRP CW calling frequency
14.070-14.095	RTTY/Data
14.095-14.0995	Automatically controlled data stations

Frequencies	Modes/Activities
14.100	IBP/NCDXF beacons
14.1005-14.112	Automatically controlled data stations
14.230	SSTV
14.285	QRP SSB calling frequency
14.286	AM calling frequency
18.100-18.105	RTTY /Data
18.105-18.110	Automatically controlled data stations
18.110	IBP/NCDXF beacons
21.060	QRP CW calling frequency
21.070-21.110	RTTY/Data
21.090-21.100	Automatically controlled data stations
21.150	IBP/NCDXF beacons
21.340	SSTV
21.385	QRP SSB calling frequency
24.920-24.925	RTTY/Data
24.925-24.930	Automatically controlled data stations
24.930	IBP/NCDXF beacons
28.060	QRP CW calling frequency
28.070-28.120	RTTY/Data
28.120-28.189	Automatically controlled data stations
28.190-28.225	Beacons
28.200	IBP/NCDXF beacons
28.385	QRP SSB calling frequency
28.680	SSTV
29.000-29.200	AM
29.300-29.510	Satellite downlinks
29.520-29.580	Repeater inputs
29.600	FM simplex
29.620-29.680	Repeater outputs

☐ Check Here If You Want To Open Links In A New Window



## OPERATING, CALLING AND SIMPLEX FREQUENCIES



*Compiled By AC6V*

### QUICK FIND



▶ [160M TO 6 METERS](#) ▶ [VHF](#) ▶ [IOTA](#) ▶ [COUNTY HUNTERS](#)

▶ [CONSIDERATE OPERATOR FREQ GUIDE](#)

▶ [HF PORTABLE](#)

▶ [PSK31 QSO FREQUENCIES](#)



[FISTS CALLING FREQUENCIES, NETS, AND ACTIVITIES](#)

---

## CALLING FREQUENCIES

**HF To 6M -- DX, DXpedition, SSB, CW, AM, FM, RTTY, SSTV**

Note: By tradition, 20M and up is Upper Sideband, 40M and below is Lower Sideband. An exception is the new [60M Ham Band](#) -- use USB. This protocol came about as a matter of convenience in early SSB transceiver design and has remained to this day. And yes - you can operate either sideband legally where phone is allowed. And yes you can operate CW on the phone bands -- but best stay with the protocols. See URL:

▶ [CONSIDERATE OPERATOR FREQ GUIDE](#)

AND URL:

▶ [USA AMATEUR RADIO BAND PLANS](#)

### 160 METERS

1.810 QRP CW Calling frequency

1828.5 -- DXpeditions CW Operations are frequently here

1.830-1.840 CW, RTTY and other narrowband modes, intercontinental QSOs only

1.840-1.850 CW, SSB, SSTV and other wideband modes, intercontinental QSOs only

1.825 - SSB QRP Calling Freq

1910 - SSB QRP Calling Freq

[PSK31](#)

---



## **80/75 METERS**

**3.500-3.510 CW DX Window**

**3.505 DXpeditions CW are frequently here**

**3.560 QRP CW Calling frequency**

**3.590 RTTY DX**

**3.790-3.800 SSB DX Window**

**3.710 QRP Novice/Tech CW Calling Freq**

**3.845 SSTV**

**3.885 AM Calling Frequency**

**3.799 DXpeditions SSB are frequently here**

**3.985 QRP SSB Calling frequency**

**[PSK31](#)**

---

## **[60 METERS -- SEE ARRL WEBSITE](#)**

**[On 60M - CH5 is the unofficial DX calling frequency!](#)**

---

## **40 METERS**

**7.000 - 7.010 CW DX Window**

**7037 Pactor Calling frequency**

**7.040 RTTY DX**

**7.040 QRP CW Calling Freq**

**7.050 XTAL Controlled Rigs**

**7.290 AM**

**7.065 DXpedition SSB USA split to 7.150 and above**

**7.005 DXpeditions CW are frequently here**

**7.110 QRP Novice/Tech CW Calling Frequency**

**7.171 SSTV**

**7.285 QRP SSB Calling frequency**

**7.290 AM Calling frequency**

**[PSK31](#)**

---

## **30 METERS**

**10.106 QRP CW Calling frequency**

**10.110 -- DXpeditions CW are frequently here**

**[PSK31](#)**

---

## **20 METERS**

**14.025 DXpedition CW Freq -- Usually Split**

**14.060 QRP CW Calling frequency**

**14.080 DXpedition RTTY Freq**

**14.080 to 14.100 Primary Range for RTTY**

**14.100 NCDXF Beacons (**STAY OFF OF THIS FREQUENCY**) Many Hams rely on these beacons for propagation determination. For Details - see [NCDXF/IARU International Beacon Network](#)**

**14.195 Rare DX & DXpeditions Frequently Operate SSB Here -- Generally Listening Up-Split**

14.230, 14233, 14236 SSTV

14.285 QRP SSB Calling frequency

14.286 AM Calling Frequency

14.336 MHz County Hunters when ever 20 is open and mobiles are around. For More County Hunters Frequencies see -- [COUNTY HUNTERS](#)

[PSK31](#)

---

### 17 METERS

18.075 DXpeditions CW are frequently here -- Usually Split

18.080 CW QRP Calling Freq

18.110 NCDXF Beacons (**STAY OFF OF THIS FREQUENCY**) Many Hams rely on these beacons for propagation determination. For Details - see [NCDXF/IARU International Beacon Network](#)

18.130 SSB QRP Calling Freq

18.145 DXpeditions SSB are frequently here -- Usually Split

[PSK31](#)

---

### 15 METERS

21.025 Rare DX & DXpeditions Frequently Operate CW Here - Generally Listening Up-Split

21.060 QRP CW calling frequency

21.080 to 21.100 RTTY Primary Range

21.080 RTTY DXpeditions are frequently here

21.110 QRP Novice/Tech Calling Freq

21.150 NCDXF/IARU beacons (**STAY OFF OF THIS FREQUENCY**) Many Hams rely on these beacons for propagation determination. For Details - see [NCDXF/IARU International Beacon Network](#)

21.295 Rare DX & DXpeditions Frequently Operate SSB Here -- Generally Listening Up-Split

21.340, 21430 SSTV

21.385 QRP SSB calling frequency

[PSK31](#)

---

### 12 METERS

24.895 Rare DX & DXpeditions Frequently Operate CW Here -- Generally Listening Up-Split

24,910 QRP CW Calling FREQ

24.930 NCDXF Beacons (**STAY OFF OF THIS FREQUENCY**) Many Hams rely on these beacons for propagation determination. For Details - see [NCDXF/IARU International Beacon Network](#)

24.950 QRP SSB Calling Freq

24.945 Rare DX & DXpeditions Frequently Operate SSB Here -- Generally Listening Up-Split

[PSK31](#)

---

### 10 METERS

28.025 CW Rare DX & DXpeditions Frequently Operate Here -- Split

28.060 QRP CW Calling frequency

28.080 RTTY Rare DX & DXpeditions Frequently Operate Here -- Split

28.080 to 28.100 Primary Range for RTTY

28.1010 10/10 Intl CW Calling Frequency

28.110 QRP Novice/Tech Calling FREQ

28.190-28.225 Beacons



**28.200 NCDXF/IARU beacons (**STAY OFF OF THIS FREQUENCY**)** Many Hams rely on these beacons for propagation determination. For Details - see [NCDXF/IARU International Beacon Network](#)

**28.380 10/10 SSB Intl Calling Frequency**

**28.385 QRP SSB Calling frequency**

**28.425 10/10 SSB Intl Calling Frequency – Another is 28.400**

**28.495 SSB Rare DX & DXpeditions Frequently Operate Here -- Split**

**28.600 Old General Callin Frequency - Still used by Old Timers**

**28.675~28.685 SSTV Operating Frequency -- IARU Region 1**

**28.680 SSTV Operations USA/Canada**

**28.825 10-10 Backscatter Net - Paper Chasers Net**

**28.885 6M DX Liaison Frequency -- Listen here for 6 Meter DX opening announcements and discussions.**

**28.945 FAX Operating Frequency**

**29.000-29.200 AM Operations**

**29.300-29.510 Satellite Downlinks**

**29.520-29.580 Repeater Inputs**

**29.600 FM Simplex - Calling Frequency**

**29.620-29.680 Repeater Outputs**

[\*\*PSK31\*\*](#)

---

## **SIX METER FREQUENCIES**

**50.06-50.09 Beacons**

**50.0-50.1 CW**

**50.090 CW Calling Freq**

**50.06 QRP CW Calling Freq**

**50.7 RTTY Calling Frequency**

**50.100 to 50.130 DX Window (USB)**

**50.110 DX Calling Frequency (USB) Usually Non-USA Stations Call Here.**

**50.115 DXpeditions Frequently operate CW and SSB here**

**50.125 USA National SSB Simplex Frequency (USB) Lots Of USA Hams Call Here For Local and Across Country**

**50.1-50.6 Weak Signal, AM**

**50.260 is the WSJT Meteor Scatter calling frequency in the USA**

**50.270 FSK Meteorscatter**

**50.300 FM Simplex Calling Frequency (West Coast)**

**50.385 USB PSK31**

**50.4 National AM Simplex Frequency**

**50.885 QRP SSB Calling Freq**

**51.910 FM Internet Linking**

**52.525 National FM Simplex Calling Frequency**

**6 Meter Simplex Frequencies --51.500 51.520 51.540 51.560 51.580 51.600 52.490 52.510 52.525\*  
52.540 52.550 52.570 52.590**

***A Typical 6 Meter Band Plan.***

(May Vary From Region to Region)

<b>50.000 - 50.100 CW, Beacons</b> <b>50.100 - 50.300 SSB, CW</b> <b>50.100 - 50.125 DX Window</b> <b>50.125 SSB Calling Frequency</b> <b>50.260 WSJT Calling Frequency</b> <b>50.270 FSK Meteorscatter</b> <b>50.290 PSK31 (SSB)</b>	<b>50.300 - 50.600 All Modes</b> <b>50.300 FM Simplex Calling</b> <b>Frequency (West Coast)</b> <b>50.400 AM Calling Frequency</b>	<b>50.600 - 50.800 Digital</b> <b>50.680 SSTV</b> <b>50.800 - 51.000 Remote Control</b> <b>51.000 - 51.100 Pacific DX</b> <b>Window</b> <b>51.120 - 51.180 Digital</b> <b>51.120 PSK31 (FM)</b>
<b>51.200 - 51.480 FM Repeater</b> <b>Inputs</b> <b>51.500 - 51.600 FM Simplex</b> <b>51.620 - 51.680 Digital</b> <b>51.700 - 51.980 FM Repeater</b> <b>Outputs</b>	<b>52.020 - 52.040 FM Simplex</b> <b>52.060 - 52.480 FM Repeater</b> <b>Inputs</b> <b>52.525 FM Simplex Calling</b> <b>Frequency</b> <b>52.540 FM Simplex</b>	<b>52.560 - 52.980 FM Repeater</b> <b>Outputs</b> <b>53.000 - 53.020 FM Simplex</b> <b>53.040 - 53.480 FM Repeater</b> <b>Inputs</b>
<b>53.100 Remote Control</b> <b>53.200 Remote Control</b> <b>53.300 Remote Control</b> <b>53.400 Remote Control</b>	<b>53.500 Remote Control</b> <b>53.520 FM Simplex</b> <b>53.540 - 53.980 FM Repeater</b> <b>Outputs</b>	<b>53.600 Remote Control</b> <b>53.700 Remote Control</b> <b>53.800 Remote Control</b> <b>53.900 FM Simplex</b>



## VHF TO DAYLIGHT BEACONS, CALLING AND SIMPLEX FREQUENCIES

### VHF TO DAYLIGHT BEACONS -- 2 meters to 1 centimeter

#### Repeater Pairs and Simplex Frequencies - From The South Eastern Repeater Association

**CALLING FREQUENCIES -- Courtesy of Rob Bellville and the Lincoln Amateur Radio Club**

2M CW..... 144.100 MHz  
 2M QRP CW Calling Freq ----144.060  
 2M PSK ..... 144.144 to 144.150  
 2M SSB..... 144.200 MHz  
 2M QRP SSB Calling Freq ---- 144.285  
 2M FM..... 146.520 MHz (National Simplex Freq)  
 1.25M PSK .... 222.07 to 222.15  
 1.25M CW..... 222.100 MHz  
 1.25M SSB.... 222.100 MHz  
 1.25M FM..... 223.500 MHz  
 70cm SSB..... 432.100 MHz  
 70cm PSK ..... 432.2 and up  
 70cm FM..... 446.000 MHz  
 33cm CW/SSB.. 903.100 MHz  
 33cm FM..... 906.500 MHz  
 23cm FM..... 1294.500 MHz  
 23cm CW/SSB..1296.100 MHz  
 13cm CW/SSB..2304.100 MHz

## VHF/UHF/SHF SIMPLEX FREQUENCIES

### 2 METERS



146.400, 146.415, 146.430, 146.445, 146.460, 146.475, 146.490, 146.505, 146.535, 146.550, 146.565, 146.580, 146.595, 147.405, 147.420, 147.435, 147.450, 147.465, 147.480, 147.495, 147.510, 147.525, 147.540, 147.555, 147.570, 147.585

---

#### From the JPLARC in Southern California

144.31 to 144.375, unchannelized, 144.405 to 144.475, unchannelized 144.49 (International Space Station uplink: transmit here & listen to 145.80 for the downlink)

145.51 to 145.595, unchannelized

145.71 to 145.785 in 15 kHz steps (for fixed simplex base station use, i.e. IRLP, Echolink)

146.43 (ATV simplex only), 146.52 (national simplex), 146.535, 146.55 146.565 (local ARDF freq.; usable when there is no "T hunt" in progress) 146.58, 146.595, 147.48, 147.51, 147.525, 147.54, 147.555, 147.57

---

#### 1.25 METERS

223.420, 223.440, 223.460, 223.480, 223.520, 223.540, 223.560, 223.580, 223.600, 223.620, 223.640, 223.660, 223.680, 223.700, 223.720, 223.740, 223.760, 223.780, 223.800, 223.820, 223.840

---

#### 70 CM

445.9125 445.9250 445.9375 445.9500 445.9625 445.9750 445.9875 446.0000 \*

446.0125 446.0250 446.0375 446.0500 446.0625 446.0750 446.0875 446.1000

446.1125 446.1250 446.1375 446.1500 446.1625 446.1750

\* 446.000 is the National FM Voice Simplex Calling Frequency

---

#### 900 MHz

National "Traditional" FM Voice Simplex Channels

(also for use with 25 MHz duplex offset radios)

906.000 to 907.000 MHz - channel every 25 KHz

906.500 - National Calling Frequency

---

#### 1.2 GHz

1294.00 - 1295.00 Narrow Band FM simplex, every 25 KHz

1294.50 National simplex calling channel



#### QRP CALLING FREQUENCIES -- USA

Qrp Power : The Best Recent Qrp Articles from Qst, Qex and the Arrl Handbook -- by Joel Kleinman (Editor), Zack Lau (Editor)

[Buy the Book Today!](#)

BAND	CW	SSB
160M	CW--1.810	SSB -- 1.910
80M	CW-- 3.560	SSB --3.985
80M	CW-- 3.579 (Colorburst Crystal Frequency)	--

80M	CW--3.710 (Novice)	--
40M	CW--7.040 NOTE 1.	SSB --7.285
40M	CW--7.035 (QRP-L)	--
40M	CW--7.110 (Novice)	--
40M	CW--7.112 (NorCal crystals)	--
30M	CW--10.106	--
30M	CW-- 10.116 (QRP-L)	--
20M	CW-- 14.060	SSB --14.285
17M	CW--18.096	SSB --18.130
15M	CW--21.060	SSB --21.385
15M	CW-- 21.110 (Novice)	--
12M	CW--24.906	SSB --24.950
10M	CW--28.060	SSB -- 28.885
10M	CW--28.110 (Novice)	SSB --28.385 (Novice)
6M	CW-- 50.060	SSB --50.885
2M	CW--144.060	SSB --144.285
2M	--	FM--144.585

**NOTE 1.** The ARRL Band Plan designates this as a RTTY DX frequency. See URL:  
<http://www.arrl.org/FandES/field/regulations/bandplan.html#40m>



### QRP CALLING FREQUENCIES -- EUROPE

**Qrp Power : The Best Recent Qrp Articles from Qst, Qex and the Arrl Handbook -- by Joel Kleinman (Editor), Zack Lau (Editor)**

[Buy the Book Today!](#)

BAND	CW	SSB
160M	--	SSB --1.843
80M	--	SSB --3.690
80M	--	SSB --3.690
40M	CW--7.030	SSB --7.090
40M	CW--7.060	--
15M	--	SSB --21.285
10M	--	SSB -- 28.360
6M	--	SSB --50.285

**ISLAND HUNTER FREQUENCIES (IOTA) IOTA CW: 3.530, 7.030, 10.115, 14.040, 18.098 and 21.040 MHz**

**IOTA SSB: 3.755, 7.060, 14.260, 18.128, 21.260, 24.950, 28.460 and 28.560 MHz**

**US Island Hunters: 7.250, 14.250 to 14.260 (main), 21.350, 28.450 MHz**



**CW - anywhere.**

---

## **COUNTY HUNTERS NETS AND CALLING FREQUENCIES**

From [The County Hunter Web](http://www.thecountyhunterweb.com)

County hunters usually can be found participating in the Emergency and Mobile County Hunters Net. This net is in operation almost any time band conditions allow. Generally, these times are 1300 to 2200 UTC, but they can be extended when there are active mobiles.

The primary SSB operating frequency of the county hunting net is 14.336 MHz, and is considered the net home frequency. A secondary net usually is in operation at 7.185 MHz, except between 1545 to 1700 UTC, when it moves to 7.243 MHz. Occasionally, mobile operators will shift to other bands. The usual frequency on 75 meters is 3.903 MHz, while 15 and 10 meters are at 21.338 MHz and 28.336 MHz

The CW operating frequencies of the CW net can be found at 14.0565 MHz on 20 meters and 7.0385 on 40 meters. The frequency on 30m is 10.1225 These nets are not as active but put out a call, and someone will usually come back. The abbreviation "CHN" is used to designate the net.

---

## **COMMON PSK31 FREQUENCIES**

The plan for PSK31 activity has always been (since PSK31 started) to concentrate activity starting from the bottom edge of the IARU RTTY bandplan, expanding upwards as activity increased. The exception is in the 10 mts band in order to give non full privileges ham to meet. It was defined as 150 Hz above it. Keep in mind that all you need is about 100 Hz as channel separation.

These recommended frequencies are in accordance with the IARU bandplan for region 1. There may be differences for regions 2 and 3

1838.150

3580.150

7035.15 for region 1 and region 3, and 7080.15 for region 2 \*

10142.150

14070.150

18100.150

21080.150 (although most activity can be found 10 kHz lower)

24920.150

28120.150


\* This is due to the fact that the 7 MHz band is much wider in region 2 (the Americas), and the IARU bandplan reflects this.

---

## **HF Portable Calling Frequencies**

<b>BAND</b>	<b>CW/Data</b>	<b>SSB</b>
<b>160M</b>	--	<b>SSB -- 1.8495 LSB (Regions 1 &amp; 3)</b>
<b>160M</b>	<b>CW/Data -- 1.8075</b>	<b>SSB -- 1.9125 LSB (USA)</b>
<b>80M</b>	--	<b>SSB -- 3.6875 LSB (Regions 1 &amp; 3)</b>
<b>80M</b>	<b>CW/Data -- 3.5775</b>	<b>SSB -- 3.9975 LSB (USA)</b>
<b>40M</b>	--	<b>SSB -- 7.0875 LSB (Regions 1 &amp; 3)</b>
<b>40M</b>	<b>CW/Data -- 7.0675</b>	<b>SSB -- 7.2475 LSB (USA)</b>
<b>30M</b>	<b>CW -- 10.1175</b>	--
<b>30M</b>	<b>CW/Data -- 10.1375</b>	--
<b>20M</b>	<b>CW/Data -- 14.0975</b>	<b>SSB -- 14.3425 USB</b>
<b>17M</b>	<b>CW/Data -- 18.1075</b>	<b>SSB -- 18.1575 USB</b>
<b>15M</b>	<b>CW/Data -- 21.1075</b>	<b>SSB -- 21.4375 USB</b>
<b>12M</b>	<b>CW/Data -- 24.9275</b>	<b>SSB -- 24.9775 USB</b>
<b>10M</b>	<b>CW/Data -- 28.1075</b>	<b>SSB -- 28.3375 USB</b>
<b>6M</b>	--	<b>SSB -- 50.1625 USB</b>

CAN'T FIND IT? SEARCH THE WEB OR THE AC6V WEBSITE



☐ Web
 ☒ AC6V.com

Search the entire AC6V website (all 133 pages)



# Amateur Radio HF Digital Mode Frequencies

(Primary frequency in bold red, secondary in bold black)

Mode	Sub-Mode	Dial Frequency kHz	Center Frequency kHz	Offset Hz	Region	Reference
JT65-HF		1,805.00				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
PSK31		1,807.00			USA	<a href="http://www.podxs070.com/common-psk31-operating-frequencies">http://www.podxs070.com/common-psk31-operating-frequencies</a>
Olivia	Olivia 16/500	1,808.00	1,808.75	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 16/500	1,808.50	1,809.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
JT65-HF		<b>1,838.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
Olivia	Olivia 16/500	1,838.00	1,838.75	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
PSK31		<b>1,838.00</b>	1,838.15		Europe	<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
Olivia	Olivia 16/500	3,522.00	3,522.75	750	E. Asia	<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 32/1000	3,522.00	3,523.00	1000	E. Asia	<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
JT65-HF		<b>3,576.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
Olivia	Olivia 16/500	3,577.00	3,577.75	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 32/1000	3,577.00	3,578.00	1000	2	<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
PSK31		<b>3,580.00</b>	3,580.15			<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
Olivia	Olivia 16/500	<b>3,582.50</b>	3,583.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 32/1000	3,615.00	3,616.00	1000	1	<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 32/1000	3,620.00	3,623.00	1000	Australia	<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 16/500	7,025.50	7,026.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
PSK31		<b>7,035.00</b>	7,035.15		13	<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
JT65-HF		7,036.00				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
JT65-HF		<b>7,039.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
PSK31		7,040.00			3	<a href="http://en.wikipedia.org/wiki/PSK31">http://en.wikipedia.org/wiki/PSK31</a>
Olivia	Olivia 16/500	<b>7,042.50</b>	7,043.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 16/500	<b>7,072.50</b>	7,073.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
JT65-HF		<b>7,076.00</b>			USA	<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
PSK31		<b>7,080.00</b>	7,080.15		2	<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
JT65-HF		10,137.00			USA	<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
JT65-HF		10,138.00				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
JT65-HF		<b>10,139.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
Olivia	Olivia 16/500	10,138.50	10,139.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
PSK31		<b>10,142.00</b>	10,142.15			<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
Olivia	Olivia 16/500	10,141.50	10,142.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
PSK31		<b>14,070.00</b>	14,070.15			<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
Olivia	Olivia 16/500	14,073.65	14,074.40	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 16/500	<b>14,074.65</b>	14,075.40	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
JT65-HF		14,075.00				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
JT65-HF		<b>14,076.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
Olivia	Olivia 16/500	14,077.65	14,078.40	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 32/1000	14,105.50	14,106.50	1000		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 32/1000	14,106.50	14,107.50	1000		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
JT65-HF		18,098.00				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
PSK31		<b>18,100.00</b>	18,100.15			<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
JT65-HF		<b>18,102.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
Olivia	Olivia 16/500	<b>18102.65</b>	18103.4	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 16/500	18,103.65	18,104.40	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
JT65-HF		18,106.00				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
PSK31		21,070.00	21,070.15			<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
JT65-HF		<b>21,076.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
PSK31		<b>21,080.00</b>	21,080.15			<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
Olivia	Olivia 16/500	<b>21,086.50</b>	21,087.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 16/500	21,087.00	21,087.75	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 16/500	21,129.50	21,130.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 32/1000	21,152.50	21,153.50	1000		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 32/1000	21,153.50	21,154.50	1000		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
JT65-HF		<b>24,917.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
JT65-HF		24,920.00				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
PSK31		<b>24,920.00</b>	24,920.15			<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>
Olivia	Olivia 16/500	24,921.50	24,922.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
JT65-HF		<b>28,076.00</b>				<a href="http://hflink.com/jt65/">http://hflink.com/jt65/</a>
Olivia	Olivia 16/500	<b>28,076.00</b>	28,076.75	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
Olivia	Olivia 16/500	28,076.50	28,077.25	750		<a href="http://hflink.com/olivia/">http://hflink.com/olivia/</a>
PSK31		<b>28,120.00</b>	28,120.15			<a href="http://aintel.bi.ehu.es/psk31.html">http://aintel.bi.ehu.es/psk31.html</a>

# POD XS Ø7Ø Club <sup>(/)</sup>



PSK operators tend to hang out at certain frequencies on the bands. Some of the frequencies are dependent on the location of the station, due to local regulations or QRM. Here are the most common:

Band	Frequency kHz
160M	1807 (USA)
	1838 (Europe)
80M	3580
40M	7070 (USA - used very little)
	7040 (Europe - most popular freq.)
	7028 (Japan)
30M	10138-10142
20M	14070
17M	18100
15M	21070
12M	24920
10M	28120
6M	50290 (USA)
	50250 (Europe)

## Main Menu

[Home \(/\)](#)  
[Join Us! \(/join-us\)](#)  
[Email The Help Desk \(/email-the-help-desk\)](#)  
[Ø7Ø Club Staff Directory \(/070-club-staff-directory\)](#)  
[Frequently Asked Questions \(/frequently-asked-questions\)](#)  
[Membership FAQs \(/frequently-asked-questions/membership-faqs\)](#)  
[Ø7Ø Club Callsign Policy \(/frequently-asked-questions/o7o-club-callsign-policy\)](#)  
[Introduction To PSK \(/frequently-asked-questions/introduction-to-psk\)](#)  
[PSK31 Frequencies \(/frequently-asked-questions/psk31-frequencies\)](#)  
[PSK31 Hardware & Software \(/frequently-asked-questions/psk31-hardware-software\)](#)  
[Alpha List \(/alpha-list\)](#)  
[Ø7Ø Email Reflector \(/o7o-email-reflector\)](#)  
[LONP \(/lonp\)](#)  
[Membership Endorsements \(/membership-endorsements\)](#)  
[Work The World Award Series \(/work-the-world-award-series\)](#)  
[Ø7Ø Club Contest Calendar \(/contest-calendar\)](#)  
[Ø7Ø Club Sponsored Contests \(/o7o-club-sponsored-contests\)](#)  
[APE - August PSK31 Expedition \(/ape-august-psk31-expedition\)](#)



[How To Donate \(/how-to-donate\)](#)  
[Club History \(/club-history\)](#)

### Who's Online

We have 6 guests and no members online

Almost all of these are the transceiver settings for USB operation, so most PSK signals are within the 3 kHz above these frequencies. (80M operation tends to be both above and below 3580, and there's always W1AW's code practice to avoid at 3581.5) By convention, BPSK is symmetric, you can also operate in LSB mode - just set your transceiver 3 kHz above these frequencies. (If you operate QPSK you'll have to use the "invert" setting in your software.)

Back in the early days of PSK31, the suggested operating frequencies all ended in ".150 kHz". This was at a time when tuning was done using the transceiver. Now that all PSK software is "click and tune", this level of detail is unnecessary. In fact, you only need to set your transceiver "near" the above frequencies, where "near" is defined as within a few hundred Hertz - you'll be able to tune in most of the activity with your software. But don't forget to tune around a bit when the waterfall is very active, as some stations may be operating outside of the "normal" range when there are a lot of stations on the air.

When you are operating USB, your actual transmitted frequency (the actual frequency of your PSK signal) will be equal to the sum of your transceiver setting plus the audio offset displayed in your software. Some people prefer to quote this as a sum, as in "14070 + 1200" for a transceiver set at 14070 kHz and a 1200 Hz offset. Others will state this as the sum itself, 14071.2 kHz. Both of these are exactly the same, as would be someone working the same station with a transceiver set at 14069.5 kHz and an audio offset of 1700 Hz. Note that if you are using LSB, you have to subtract the audio offset from the transceiver frequency. For the exact same operating frequency as above, an LSB station may be set at 14073 with an audio offset of 1800 Hz, which could also be quoted as "14073 -1800".

Many thanks to W3HF for the bulk of this page. The comment about W1AW came from K8IJ.

# RTTY Sub-bands

---

The HF RTTY sub-band boundaries are defined and limited by your license. Below are approximations of “normal” operating RTTY sub-bands world-wide. When operating RTTY, be sure respect the band guards around the IBP/NCDXA beacon frequencies noted below. For a detailed frequency band for IARU Region 2, see [http://www.iaru-regionii.org/Region\\_2\\_HF\\_Band\\_Plan.html](http://www.iaru-regionii.org/Region_2_HF_Band_Plan.html) [[http://www.iaru-regionii.org/Region\\_2\\_HF\\_Band\\_Plan.html](http://www.iaru-regionii.org/Region_2_HF_Band_Plan.html)] . For USA licensed frequencies, see <http://www.arrl.org/FandES/field/regulations/allocate.html> [<http://www.arrl.org/FandES/field/regulations/allocate.html>] and for USA band plan, see <http://www.arrl.org/FandES/field/regulations/bandplan.html> [<http://www.arrl.org/FandES/field/regulations/bandplan.html>] .

10 meters – 28080.5 to 28100 kHz, during contests 28080.5-28200 kHz (JA 28070-28200 kHz). (Note: PSK operation around 28120 KHz). **Avoid 28199.5-28200.5 KHz (NCDXF/IARU frequency 28200 kHz).**

12 meters – 24910 to 24930 kHz with most activity around 24920 kHz (JA 24910-24940 kHz). **Avoid 24929.5-24930.5 kHz (NCDXF/IARU frequency 24930 kHz).**

15 meters – 21080.5 to 21100 kHz, during contests 21080.5-21150 kHz (JA 21070-21150 kHz) (note: PSK31 operations around 21070-21072 kHz). **Avoid 21149.5-21150.5 kHz (NCDXF/IARU frequency 21150 kHz).**

17 meters – 18100 to 18110 kHz with occasionally operations below 18100 but above 18090 KHz (JA 18090-18120 kHz). **Note: It is illegal for USA stations to operate RTTY above 18110 KHz. Avoid 18109.5-18110.5 KHz (NCDXF/IARU frequency 18110 KHz).**

20 meters – 14080.5 to 14100 kHz, during contests 14080.5-14150 kHz (JA 14070-14150 kHz). (Note PSK31 around 14070-14072 kHz). **Avoid 14099.5-14100.5 kHz (NCDXF/IARU frequency 14100 kHz).**

30 meters – 10120 to 10150 kHz, with most operation around 10140 kHz (JA 10130-10150 kHz).

40 meters – 7025 to 7050 kHz and 7080 to 7100 kHz, during contests 7025-7100 kHz (JA 7030-7100 kHz). (USA stations are also allowed RTTY between 7100-7125 kHz).

80 meters – 3580 to 3600 kHz (JA 3520-3575 kHz), during contests 3570 (or lower)-3600 kHz. (RTTY operation above 3600 KHz is not permitted in the USA).

160 meters – 1800 to 1810 kHz. (JA 1907.5-1912.5 kHz) 1800 to 1810 kHz. (JA 1907.5-1912.5 kHz) Europe cannot operate below 1810 kHz. Region 1 (Europe, Africa, Middle East & Northern Asia) band plan suggests 1838-1843 kHz.



HFLINK is an international resource for radio operators using digital HF communications, SELCALL Selective Calling, ALE, and ionospheric propagation.



**HFLINK.COM**  
Digital Communications  
HF - ALE SELCALL  
Ionospheric Propagation

[Back to HFLINK  
HOME](#)

[MFSK Frequency List](#)  
**MFSK Center-of-Activity**  
[Join the Olivia Forum:](#)  
[Oliviadata Group](#)  
[Join the MFSK Forum](#)  
[MFSK Group](#)

[MFSK Software](#)

[MFSK Frequencies](#)

[MFSK Formats](#)

## [MFSK Frequencies](#) (used by Olivia, MFSK16, PAX, PAX2)

Digital MFSK communications are becoming popular for text keyboarding in amateur radio because MFSK is one of the most robust methods of text keyboarding that can perform superbly for long distance communications in ionospheric noise conditions where other modes fail. It is possible to communicate worldwide using MFSK with as little as a few watts of transmitter power. MFSK is different from some other types of amateur radio digital keyboarding methods, because it can often be decoded perfectly in the most poor signal-to-noise conditions, even when the human ear cannot discern the presence of the signal, and even when it cannot be easily seen on the conventional waterfall spectrum display. While amateurs are free to roam the band using VFOs, operating on any amateur frequency within the operator's license regulations, **"voluntary channelisation" of MFSK frequencies enhances the amateurs' ability to tune and communicate with MFSK using extremely weak signals that would otherwise be missed through searching via VFO tuning.** Please see the [frequency chart](#) for details. These are a combination of observed, suggested, proposed, and common usage frequencies that are also used by various types of MFSK keyboarding.

## [MFSK Formats](#)

There are currently 6 Olivia MFSK bandwidth/tone/ baud formats, several PAX formats, and several MFSK16 formats. The 2 **most common formats** for calling CQ or initiating QSOs are: Olivia **500/16** (also called "Average") and Olivia **1000/32** (also called "Standard"). A different format may easily be chosen by the operators after the QSO starts. There are advantages to faster typing with some formats and better decoding with slower formats. Please see the [formats chart](#) for details.

**MFSK Communication Software Download Links:** [N1SU Olivia MFSK](#) - [F6CTE MULTIPSK](#) or [here](#)  
**Story behind the development of Olivia:** [Pawel Jalocho](#)

# MFSK Calling Frequencies

## MFSK Center-of-Activity Frequencies

**MFSK Channels, existing and proposed frequencies for finding MFSK QSOs**

AMATEUR BAND	MFSK 500 Hz BW DIAL Frequency USB kHz	MFSK 500 Hz BW Audio Waterfall Centre Marker	MFSK 1000 Hz BW DIAL Frequency USB kHz	MFSK 1000 Hz BW Audio Waterfall Centre Marker
<b>160 meters</b>	1808.0 1808.5 1838.0 <b>1838.5</b>	750Hz 750Hz 750Hz 750Hz		
<b>80 meters</b>	3582.5 3584.5	750Hz 750Hz	3583.0 (Region 2)	1000Hz
<b>60 meters</b>	5404.25	750Hz		
<b>40 meters</b>	7026.0 (Region 3JA) 7037.5 (Region 1; 3) <b>7038.5</b> (Region 1; 3) <b>7072.5</b> (Region 2) 7076.0 (Region 2)	750Hz 750Hz 750Hz 750Hz 750Hz		
<b>30 meters</b>	10138.5	750Hz		

	<b>10141.0</b> 10141.5	750Hz 750Hz		
<b>20 meters</b>	14075.5 <b>14076.0</b> 14076.5 14077.0 14077.5 14078.0	750Hz 750Hz 750Hz 750Hz 750Hz 750Hz	14105.5 14106.5 <b>14107.5</b> 14108.5 Bandplans note: 14101 -14112 kHz shared with automatic stations all Regions	1000Hz 1000Hz 1000Hz 1000Hz
<b>17 meters</b>	<b>18103.0</b> 18103.5	750Hz 750Hz		
<b>15 meters</b>	<b>21086.5</b> 21087.0 21129.5	750Hz 750Hz 750Hz	21152.5 21153.5 Bandplans note: 21150-21160 kHz shared with automatic stations Region 2	1000Hz 1000Hz
<b>12 meters</b>	24921.5	750Hz		
<b>10 meters</b>	<b>28076.0</b> 28076.5	750Hz 750Hz		
<b>6 meters</b>	50086.5 (Region 1)	750Hz		
<b>2 meters</b>	144135.5(Region 1)	750Hz		

MFSK Formats

FORMAT	USE	NAME	TONES	AUDIO (Hz) WATERFALL CENTER MARKER	BAND WIDTH (Hz)	SPEED (WPM)	DECODE S/N RATIO -dB	BAUD
<b>Olivia*500/16</b>	<b>CQ</b>	"Average"	16	<b>750</b>	500	19.5	13	31.25
<b>Olivia*1000/32</b>	<b>CQ</b>	"Standard"	32	<b>1000</b>	1000	24.4	12	31.25
Olivia 500/8	QSO	"Normal"	8	750	500	29.3	11	62.5
Olivia 1000/16	QSO	"Fast"	16	1000	1000	39.1	10	62.5
Olivia 500/4		"Fast2"	4	750	500	39.1	10	125
Olivia 250/8		"Slow"	8	625	250	14.6	14	31.25
<b>*Common formats for calling CQ or to initiate QSO</b>								

.  
. .  
. .  
. .  
. .  
. .



## JT65-HF JT65A JT65 HF Frequency Information Digital Mode LF-MF-HF-VHF

## HFLINK Home

Ham Radio  
BandplansJT65-HF  
Frequencies  
VFO FREQ

28076.0 kHz USB

24917.0 kHz USB

alternate 24920.0 kHz USB

21076.0 kHz USB

18102.0 kHz USB

alternate 18098.0 kHz USB

14076.0 kHz USB

alternate 14075.0 kHz USB

10139.0 kHz USB

alternate 10138.0 kHz USB

alternate 10137.0 kHz USB

7039.0 kHz USB

alternate 7036.0 kHz USB

(USA) 7076.0 kHz USB

3576.0 kHz USB

JT65A MF  
Frequencies

VFO Freq

1838.0 kHz USB

alternate 1805.0 kHz USB

501.0 kHz USB

505.0 kHz USB

JT65A LF  
Frequencies

VFO Freq

136.13 kHz USB

Signal Freq:

137.4-137.6 kHz

Terrestrial JT65A  
VHF Frequencies

VFO FREQ

144.076 MHz USB

144.116 MHz USB

144.160 MHz USB

144.120 MHz USB

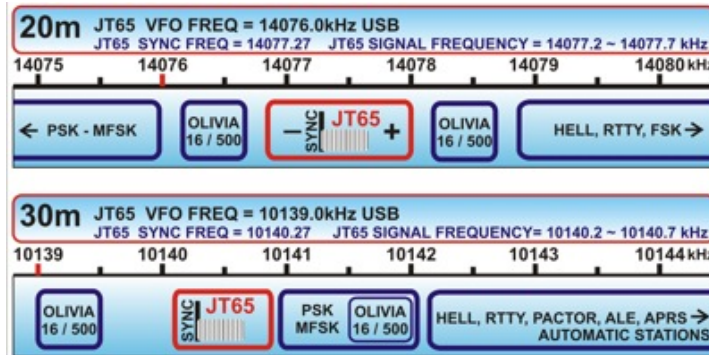
50.076 MHz USB

50.160 MHz USB

50.260 MHz USB

50.276 MHz USB

50.290 MHz USB

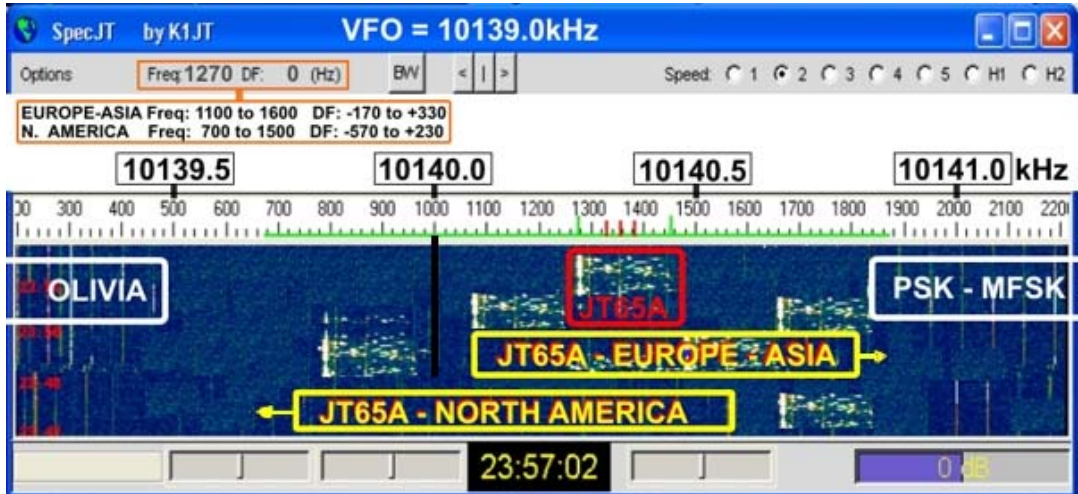
other Information  
about JT65A:

**JT65A frequency**  
14076.0 kHz USB VFO

JT65A signal is about  
+1.3 kHz to +1.5 kHz higher than VFO  
frequency.

**JT65A Passband = 355Hz**

**JT65A frequency**  
10139.0 kHz USB VFO



**JT65A Signal Passband = 355Hz**

JT65A is suitable for use in the 500Hz Bandwidth segments of [ham radio bandplans](#).

The most popular JT65A frequency is in the 20 Meter band:

**The JT65 frequency 20metres is 14076.0 kHz USB VFO.**

The JT65a sync frequency is 14077.27 kHz.

The JT65 signal frequency is about 14077.3 to 14077.7 kHz.

**The JT65A frequency 30metres is 10139.0 kHz USB VFO.**

The JT65a sync frequency is 10140.27 kHz.

\*Do not use a sync frequency less than 10140.2 kHz.

**The JT65 signal frequency is about 10140.3 to 10140.7 kHz.**

This transmit signal is within the [10140-10150kHz automatic digital sub-band](#).

**\*Special Note: Do not transmit within 10139.9-10140.1 kHz QRSS CW weak signal window!**

**International JT65A frequency 40metres is 7039.0 kHz USB VFO.**

The International JT65A sync frequency is 7040.27 kHz

The JT65A signal frequency is about 7040.3 to 7040.7 kHz.

**The JT65A frequency 40meters (USA) is 7076.0 kHz USB VFO.**

The JT65A sync frequency (USA) is 7077.27 kHz

The JT65A signal frequency is about 7077.3 to 7077.7 kHz.

**The JT65A frequency 17metres is 18102.0 kHz USB VFO.**

The JT65A sync frequency is 18103.27 kHz

Was it a "real QSO"?  
is Deep Search really  
decoding callsigns?

QSO talk site

Are the digital bits being  
decoded?

Analysis of Deep Search

**JT65A Software  
Download:**

[Software](#)  
[Software](#)

JT65A operators use  
USB VFO FREQUENCY  
for spots.

Note:  
Multiple frequencies  
are listed on some  
bands, due to:  
amateur radio rules in  
different countries and  
the need for alternate  
frequencies by various  
operators and local  
interference trends.

**The JT65A signal frequency is about 18103.3 to 18103.7 kHz.**

The JT65A alternate frequency 17meters is 18098.0 kHz USB VFO.

The JT65A frequency 12metres is 24917.0 kHz USB VFO.

The JT65A sync frequency is 24918.27 kHz

Note: before date 9/2011, the old JT65A frequency was 24920 kHz (changed to avoid QRM)

## **IMPORTANT INFORMATION ABOUT ALL JT65A FREQUENCIES**

- JT65A operators use USB VFO FREQUENCY for spots.
- JT65A signal is about 1.3+kHz higher than the VFO frequency
- The JT65A Passband is about 355Hz. Bandwidth is about 200Hz.
- JT65A may be used in the 500Hz bandwidth segments of bandplans.
- Normal operation of JT65A is a sync audio frequency of 1270.5Hz.
- Sync tone is the reference mouse-click frequency for JT65.
- JT65A signal bandwidth extends about 200Hz above 1270.5Hz sync.
- The lowest tone of the JT65 signal is normally 1270Hz.
- The system allows approximately +/-600Hz auto-tuning on receive.

source: [specifications](#)

JT65A/JT65/JT65-HF mode is normally used on HF, MF, LF and 6 meter bands.

### **Special Notes on Good Operating Procedure:**

1. Operators should be careful of frequency selection, accurate clock, and [calibration](#). Always listen and observe the waterfall spectrum of signals on the frequency before transmitting, and during activity.
2. JT65A is a weak signal digital QSO mode. Always use very low power on HF to avoid QRM to other JT65 signals and other modes. 20Watts ERP is maximum for normal activity and DXing in the 40metre to 10metre bands.
3. Normal activity of JT65A is in the "weak signal" part of the ham bands, near the PSK, MFSK, and Olivia 500 frequencies. JT65A should not be used in parts of the ham bands where faster digital modes are in use.
4. The long tone carrier duration of JT65 transmissions has potential to cause severe interference to other modes.
5. Do not use JT65 in 10144kHz-10150kHz because JT65A is NOT COMPATIBLE with MFSK, FSK, HELL, OLIVIA, CONTESTIA, ALE400, or RTTY and can cause severe interference to fast time-sharing modes such as PACKET, PACTOR, ALE, PSKmail, and APRS.

### **Multiple JT65 frequencies are listed on some bands, due to:**

- A) Amateur radio band rules are different in some countries.
- B) The need for alternate frequencies if QRM is experienced.
- C) Local or regional interference on a main frequency.



**D) Coordination with the changing spectrum utilization of the amateur community.**

**E) The high popularity of a new *mode-du-jour* may create a temporary need to find a new or alternate calling frequency.**

**F) There are many competing modes in the weak signal part of the digital bands.**

[Back to Top](#)[About HFLINK](#)[HFLINK HOME](#)[Join HFLINK - Free](#)

#### END OF PAGE

©2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011 HFpack Inc. All Rights Reserved.

HFLINK, HF-LINK, HF LINK, and the HFLINK Logo are trademarks of HFpack Inc. Any external hyperlinks must only be to the main page of the HFLINK.COM website <http://hflink.com>. Capture of the HFLINK website or any part of it within the frame of another website is not permitted. HFLINK group forum is a private group. Public archiving, forwarding, or open display on the internet of HFLINK group forum or messages is forbidden. All text and images on the HFLINK website are property or copyright HFpack Inc, or when used by permission, are copyright by their respective owners, with all rights reserved.

HFN and High Frequency Network are service marks and trademarks of HFpack, Inc. No part of the HFLINK website or HFLINK Group Forum may be used or copied without written permission of HFpack Inc.

This is the JT65A site about JT65 HF Frequency and JT65A HF Frequency Information.

JT65 is weak signal digital ham radio software and this is about the JT65 HF frequencies and JT65A HF Frequencies information.

Information about JT65A digital mode for amateur radio QSOs. Information about JT65 HF digital mode for amateur radio QSOs.

JT65A is digital ham radio software and this is about the JT65A Software JT65 Software and JT65 Download JT65A download.

HFLINK is the international resource for High Frequency Communications, HF Digital Messaging, Emergency / Disaster Relief, Interoperative HF Communications, HF Network, Ham Radio.

# US Amateur Radio Bands

## US AMATEUR POWER LIMITS

FCC 97.313 An amateur station must use the minimum transmitter power necessary to carry out the desired communications. (b) No station may transmit with a transmitter power exceeding 1.5 kW PEP.

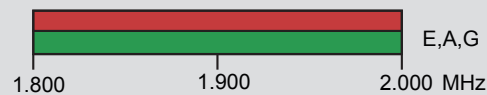
Effective Date  
March 5, 2012

Published by:  
**ARRL** The national association for  
**AMATEUR RADIO®**  
www.arrl.org  
225 Main Street, Newington, CT USA 06111-1494

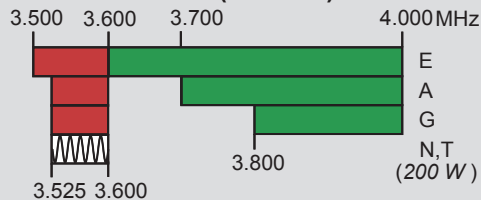


### 160 Meters (1.8 MHz)

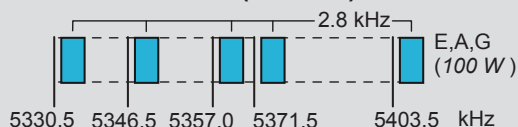
Avoid interference to radiolocation operations from 1.900 to 2.000 MHz



### 80 Meters (3.5 MHz)

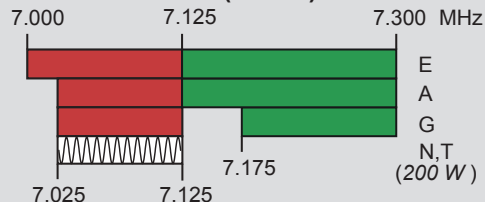


### 60 Meters (5.3 MHz)



General, Advanced, and Amateur Extra licensees may operate on these five channels on a secondary basis with a maximum effective radiated output of 100 W PEP. Permitted operating modes include upper sideband voice (USB), CW, RTTY, PSK31 and other digital modes such as PACTOR III as defined by the FCC Report and Order of November 18, 2011. USB is limited to 2.8 kHz centered on 5332, 5348, 5358.5, 5373 and 5405 kHz. CW and digital emissions must be centered 1.5 kHz above the channel frequencies indicated above. Only one signal at a time is permitted on any channel.

### 40 Meters (7 MHz)



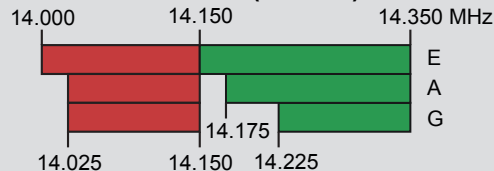
Phone and Image modes are permitted between 7.075 and 7.100 MHz for FCC licensed stations in ITU Regions 1 and 3 and by FCC licensed stations in ITU Region 2 West of 130 degrees West longitude or South of 20 degrees North latitude. See Sections 97.305(c) and 97.307(f)(11). Novice and Technician licensees outside ITU Region 2 may use CW only between 7.025 and 7.075 MHz and between 7.100 and 7.125 MHz. 7.200 to 7.300 MHz is not available outside ITU Region 2. See Section 97.301(e). These exemptions do not apply to stations in the continental US.

### 30 Meters (10.1 MHz)

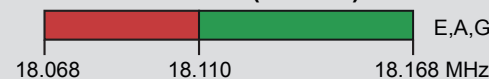
Avoid interference to fixed services outside the US.



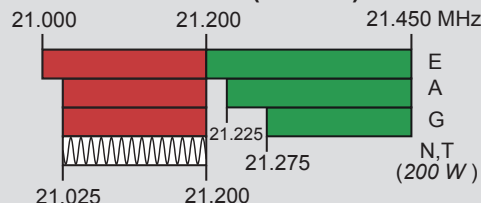
### 20 Meters (14 MHz)



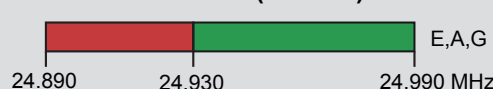
### 17 Meters (18 MHz)



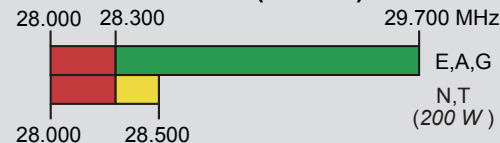
### 15 Meters (21 MHz)



### 12 Meters (24 MHz)



### 10 Meters (28 MHz)



### 6 Meters (50 MHz)



### 2 Meters (144 MHz)

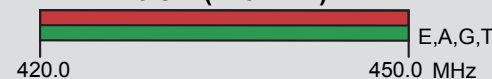


### 1.25 Meters (222 MHz)

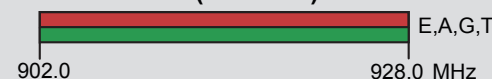


\*Geographical and power restrictions may apply to all bands above 420 MHz. See *The ARRL Operating Manual* for information about your area.

### 70 cm (420 MHz)\*



### 33 cm (902 MHz)\*



### 23 cm (1240 MHz)\*



All licensees except Novices are authorized all modes on the following frequencies:

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

\* No pulse emissions

## KEY

### Note:

CW operation is permitted throughout all amateur bands.

MCW is authorized above 50.1 MHz, except for 144.0-144.1 and 219-220 MHz.

Test transmissions are authorized above 51 MHz, except for 219-220 MHz

- = RTTY and data
- = phone and image
- = CW only
- = SSB phone
- = USB phone, CW, RTTY, and data
- = Fixed digital message forwarding systems only

E = Amateur Extra  
A = Advanced  
G = General  
T = Technician  
N = Novice

See *ARRLWeb* at [www.arrl.org](http://www.arrl.org) for detailed band plans.

**ARRL**  
**We're At Your Service**

ARRL Headquarters:  
860-594-0200 (Fax 860-594-0259)  
email: [hq@arrl.org](mailto:hq@arrl.org)

Publication Orders:  
[www.arrl.org/shop](http://www.arrl.org/shop)  
Toll-Free 1-888-277-5289 (860-594-0355)  
email: [orders@arrl.org](mailto:orders@arrl.org)

Membership/Circulation Desk:  
[www.arrl.org/membership](http://www.arrl.org/membership)  
Toll-Free 1-888-277-5289 (860-594-0338)  
email: [membership@arrl.org](mailto:membership@arrl.org)

Getting Started in Amateur Radio:  
Toll-Free 1-800-326-3942 (860-594-0355)  
email: [newham@arrl.org](mailto:newham@arrl.org)

Exams: 860-594-0300 email: [vec@arrl.org](mailto:vec@arrl.org)

Copyright © ARRL 2012 rev. 4/12/2012

# KENWOOD HIGH FREQUENCY PRIVILEGES CHART

**5 WPM  
CODE TEST  
FOR ALL THESE  
BANDS!  
EFFECTIVE APRIL  
15, 2000**

	<b>LICENSE CLASS</b>	28000 kHz	28100	28200	28300	28500	29300	29600	29700	
*	EXTRA	CW	DIGITAL	CW BEACONS	PHONE	SSB PHONE	SATS	FM		
*	ADVANCED	CW	DIGITAL	CW BEACONS	PHONE	SSB PHONE	SATS	FM		
*	GENERAL	CW	DIGITAL	CW BEACONS	PHONE	SSB PHONE	SATS	FM		
	NOVICE/ TECHNICIAN	.....	DIGITAL	CW BEACONS	PHONE	.....	.....	.....		
	EXTRA	24890 kHz				24930			24990	
*	ADVANCED		CW		DIGITAL		PHONE			
	GENERAL									
	EXTRA	21000 kHz	21025	21100	21200	21225	21300	21450		
*	ADVANCED	CW	CW	DIGITAL	CW	DX PHONE	SSB PHONE	SSB PHONE		
*	GENERAL	.....	CW	DIGITAL	CW	.....	SSB PHONE	SSB PHONE		
	NOVICE/ TECHNICIAN	.....	CW	DIGITAL	CW	.....	SSB PHONE			
	EXTRA	18068 kHz		18100	18110				18168	
*	ADVANCED	CW	CW	DIGITAL	PACKET		PHONE			
	GENERAL									
	EXTRA	14000 kHz	14025	14100	14150	14175	14225	14350		
*	ADVANCED	CW	CW DIGITAL			DX PHONE	SSB PHONE			
*	GENERAL	.....	CW DIGITAL	.....		SSB PHONE				
	NOVICE/ TECHNICIAN	.....	CW DIGITAL	.....		SSB PHONE				
	EXTRA	10100 kHz		10120	10130		10140	10150		
*	ADVANCED	CW	CW	CW DATA	CW DATA		CW PACKET			
	GENERAL									
	EXTRA	7000 kHz	7025	7100	7150	7225	7300			
*	ADVANCED	CW	CW	DIGITAL	CW	SSB PHONE	PHONE			
*	GENERAL	.....	CW	DIGITAL	CW	SSB PHONE	PHONE			
	NOVICE/ TECHNICIAN	.....	CW	DIGITAL	CW	.....	PHONE			
	EXTRA	3500 kHz	3525	3675	3725	3750	3775	3850	4000	
*	ADVANCED	CW	CW	DIGITAL	CW	PHONE DX	SSTV	PHONE		
*	GENERAL	.....	CW	DIGITAL	CW	.....	SSTV	PHONE		
	NOVICE/ TECHNICIAN	.....	CW	DIGITAL	CW	.....	PHONE			
	EXTRA	1800 kHz	1830	1840	1850				2000	
*	ADVANCED	CW	RTTY	CW DX	PHONE DX		PHONE			
	GENERAL									

**10  
METERS**  
Best Days

**12  
METERS**  
Best Days

**15  
METERS**  
Best Days

**17  
METERS**  
Best Days  
& Evenings

**20  
METERS**  
Best Days  
& Nights

**30  
METERS**  
CW & Data

**40  
METERS**  
Best Days  
& Evenings

**80  
METERS**  
Best Evenings  
& Nights

**160  
METERS**  
Night Owl  
Band

**\* = GRANDFATHERED PRIVILEGES**

By Gordon West For Kenwood Communications  
# 062200

Maximum Power  
200 Watts on  
Novice/Tech+ Subbands

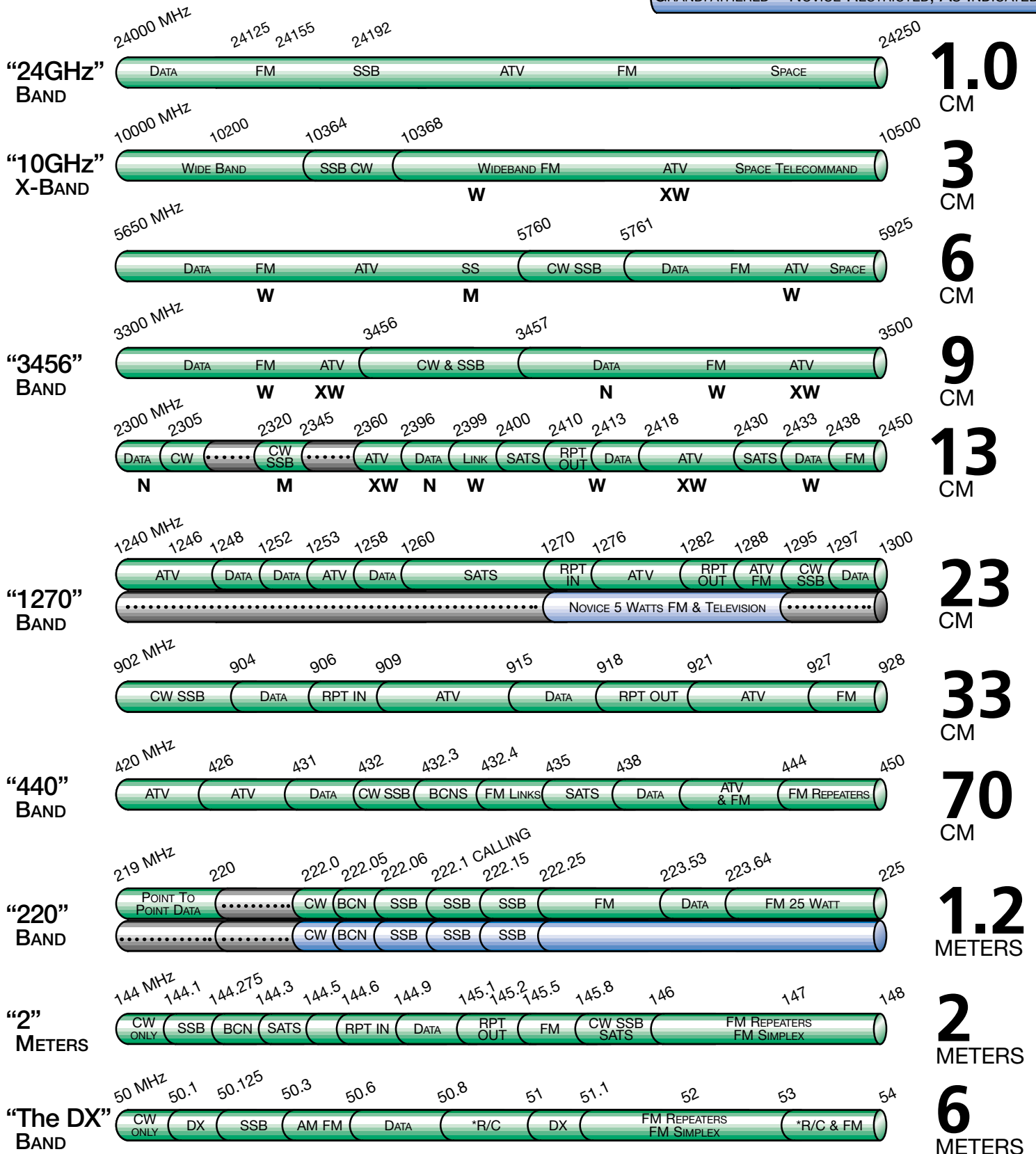
1000kHz = 1MHz (ie 7225kHz = 7.225MHz)  
..... = No Privileges Until Upgrade!



# KENWOOD VHF/UHF/Microwave Band Plan

EXTRA • ADVANCED • GENERAL  
TECHNICIAN NO: CODE & TECH + CW

GRANDFATHERED • NOVICE RESTRICTED, AS INDICATED



**BANDWIDTH**  
XW = 6MHz + BW  
W = 1MHz BW  
M = 100kHz BW  
N = 50kHz BW

AM - Amplitude Modulation  
ATV - Amateur Television  
BCNS - Automatic Propagation Transmitter (Beacon)  
CW - Morse Code  
Data - packet, RTTY, AmTOR  
DX - Distant station contacts (longer range than usual)  
FM - Frequency Modulation  
FM Links - FM relay from one repeater to another

FM Repeaters - FM relay stations  
FM Simplex - FM direct contacts  
Link - relay stations for data & voice  
Phone DX - long distance voice transmission  
Point to Point Data - automatic packet radio transfer stations  
\*R/C - radio control models  
RPT/IN - your transmit frequency to a repeater  
RPT/OUT - output side of FM repeaters

SATS - Satellite & Space Shuttle Communication  
Space - Satellite Operation  
Space Telecommand - uplinks to control satellites  
SS - Spread Spectrum  
SSB - Single Sideband Weak-Signal Work  
SSB/CW - both Sideband & Morse Code  
SSTV - slow scan TV  
Wide Band FM - television audio  
Wide Band - FM, AM, Spread Spectrum, Television

# U.S.A. Amateur Radio UHF/VHF Band Plan

2013

Amateur TV Fast Scan

Satellite

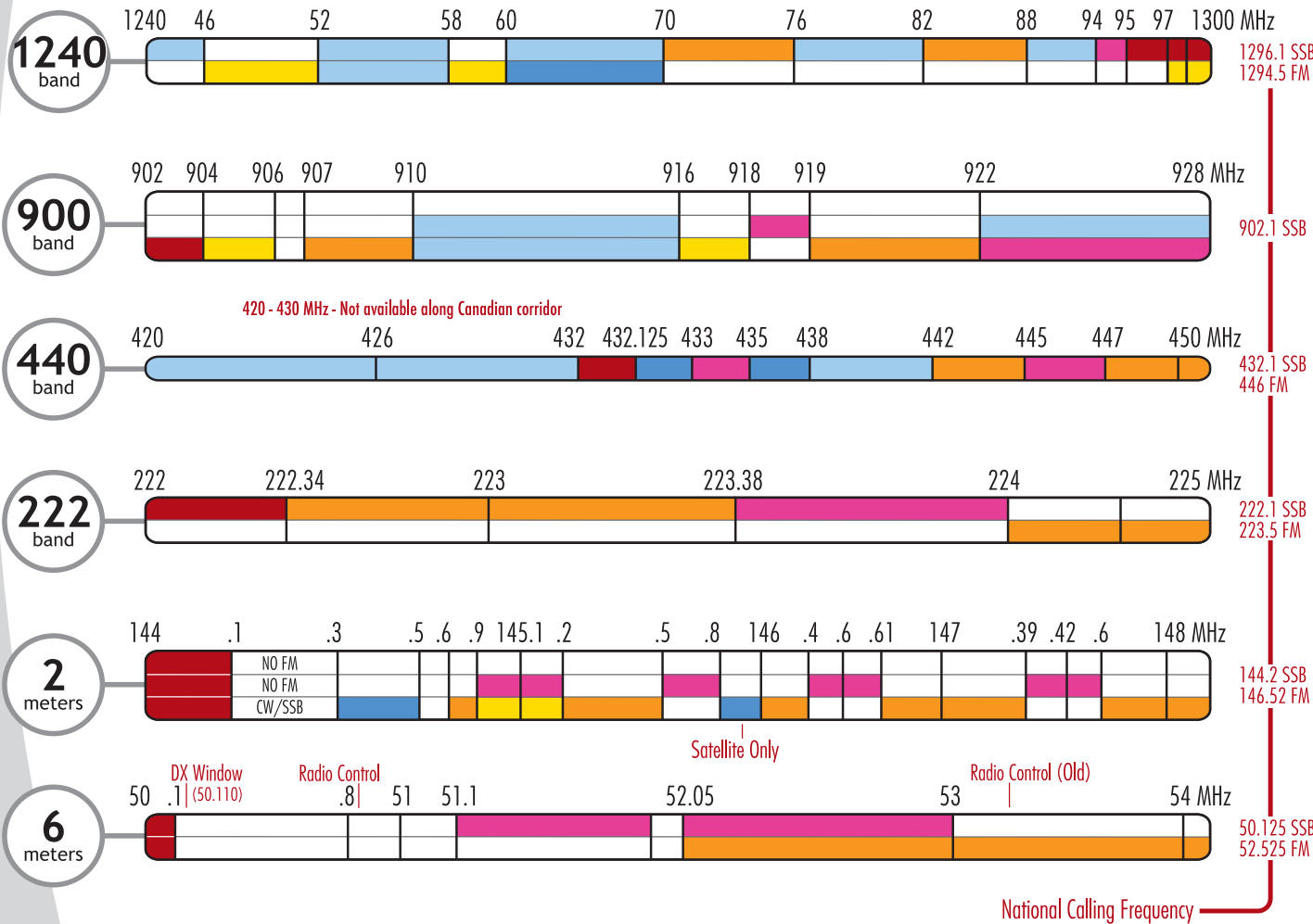
CW & Weak Signal (No FM)

Digital

FM Simplex

SSB

FM Repeater



# U.S.A. Amateur Radio HF Band Plan

Extra Voice - CW - Image

Advanced Voice - CW - Image

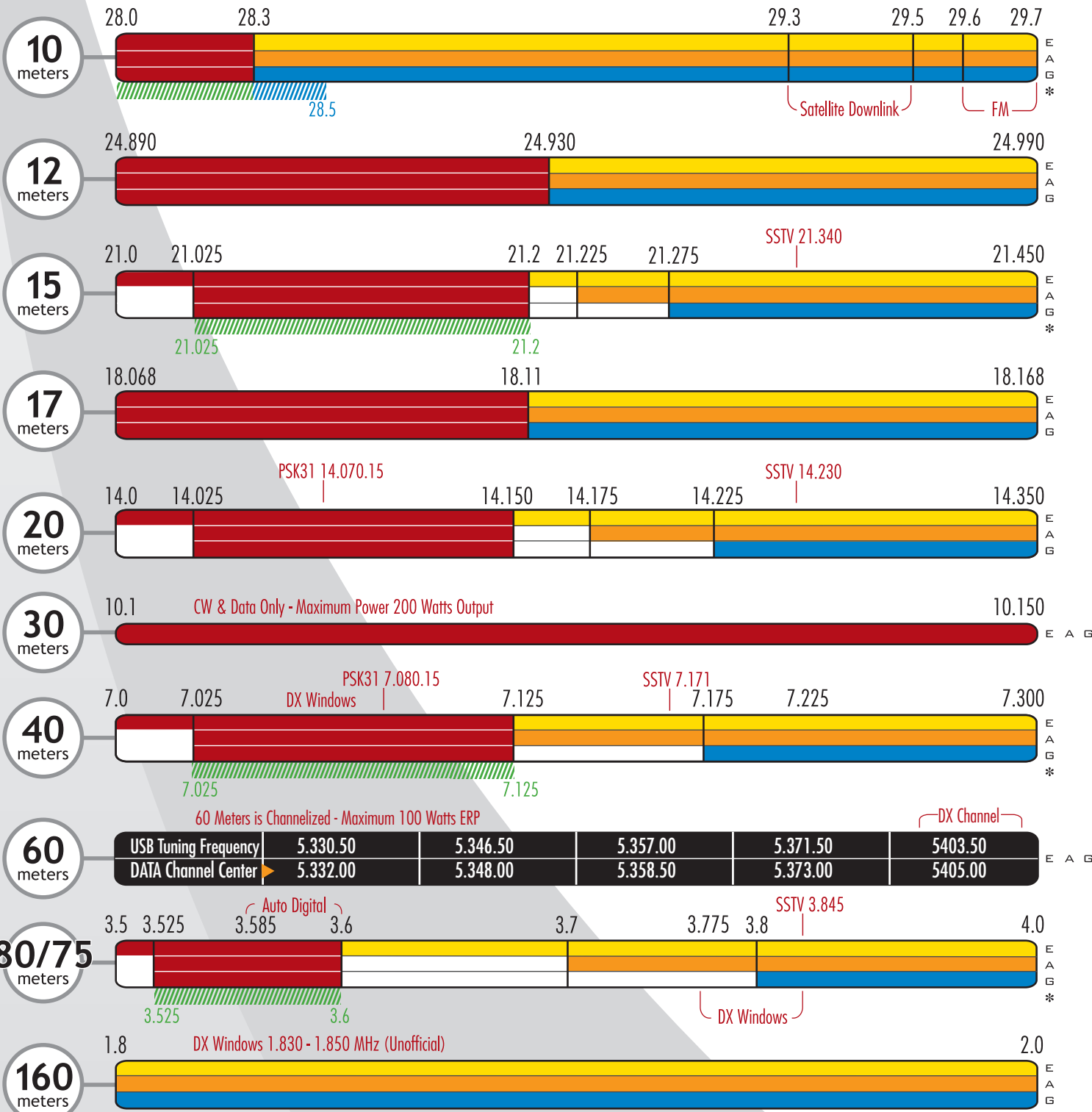
General Voice - CW - Image

CW - RTTY - DATA

Novice / Technician - CW

Novice / Technician - Voice

No Privileges



E Extra A Advanced G General  
\* Novice and Technician

Under restructuring, all Advanced license classes retain their operating privileges.



# U.S.A. Amateur Radio HF Band Plan

## Common Country Prefixes (2013)

1A* (SMO) of Malta (Rome)	BV, BN-BX Taiwan	GM Scotland	OD Lebanon	V8 Brunei
1S* Spratly Is	BV9P Pratas Is	GP, GU Guernsey	OE Austria	VA-VG Canada
2I Northern Ireland	BY China	GS Scotland	OF-OI Finland	VK Australia
3A Monaco	C2 Nauru	GT Isle of Man	OHØ Aland Is	VK9C Cocos (Keeling) Is
3B6, 3B7 Agalega & St. Brandon Is	C3 Andora	GW Wales	OJØ Market Reef	VK9L Lord Howe Is
3B8 Mauritius	C4 Cyprus	GX England	OK-OL Czech Republic	VK9M Mellish Reef
3B9 Rodriguez Is	C5 The Gambia	H44 Solomon Is	OM Slovak Republic (Slovakia)	VK9N Norfolk Is
3CØ Annobon Is	C6 Bahamas, The	H4Ø Temotu Is	ON-OT Belgium	VK9W Willis Is
3C1 Equatorial Guinea	C8-C9 Mozambique	H6-H7 Nicaragua	OX Greenland	VK9X Christmas Is
3D2/C Conway Reef	CA-CE Chile	HA Hungary	OY Faroe Is	VKØ Heard Is & Macquarie Is
3D2/F Fiji	CE9 Antarctica & South Shetland Is	HB Switzerland	OZ Denmark	VO Canada
3D2/R Rotuma Is		HBØ Liechtenstein	P2 Papua New Guinea	VP2E Anguilla
3DA Swaziland	CEØX San Felix & San Ambrosio Is	HC-HD Ecuador	P3 Cyprus	VP2M Montserrat
3V Tunisia	CEØY Easter Is	HC8-HD8 Galapagos Is	P4 Aruba	VP2V British Virgin Is
3W Vietnam	CEØZ Juan Fernandez Is	HFØ South Shetland Is	P5 Korea, North	VP5, VQ5 Turks & Caicos Is
3X Guinea	CF-CK Canada	HG Hungary	PA-P1 Netherlands	VP6 Pitcairn & Ducie Is
3Y Bouvet Is	CL-CM Cuba	HH Haiti	PJ2 Curacao	VP8 Antarctica
3Y Peter 1 Is	CN Morocco	HI Dominican Rep.	PJ4 Bonaire	VP8 Falkland Is
4J-4K Azerbaijan	CO Cuba	HJ-HK Colombia	PJ5 St. Eustatius	VP8 So Georgia Is
4L Georgia	CP Bolivia	HKØ Malpelo Is	PJ6 Saba	VP8 So Orkney Is
4O Montenegro	CT Portugal	HKØ San Andres & Providencia	PJ7 Sint Maarten	VP8 So Sandwich Is
4P-4S Sri Lanka	CT3 Madeira Is	HL Korea, South	PP-PY Brazil	VP8, RI1 So Shetland Is
4U, 4UØITU- ITU Headquarters	CU Azores	HO-HP Panama	PPØ-PYØF Fernando de Noronha	VP9 Bermuda
4U9ITU, 4U1WRC	CV-CX Uruguay	HQ-HR Honduras	PPØ-PYØS Saint Peter & St. Paul Rocks	VQ9 Chagos Is
4U, 4UØUN- United Nations HQ	CY9 Saint Paul Is	HS Thailand	PPØ-PYØT Trindade Is & Martim Vaz Is	VR Hong Kong
4U9UN				
4W Timor-Leste	CYØ Sable Is	HV Vatican (Holy See)	PZ Suriname	VU India
4X, 4Z Israel	D2-D3 Angola	HZ Saudi Arabia	R1-7 European Russia	VU4 Andaman & Nicobar Is
5A Libya	D4 Cape Verde	I Italy	R8-0 Asiatic Russia	VU7 Lakshadweep Is
5B Cyprus	D6 Comoros	IMØ, ISØ Sardinia	R1AN Antarctica	VY Canada
5C-5D Morocco	D7-D9 Korea, South	J2 Djibouti	R1FJ Franz Josef Land	W U.S.A.
5H-5I Tanzania	DA-DR Germany	J3 Grenada	R1MV Malyj Vysotskij Is	WH6-WH7 Hawaii
5J-5K Colombia	DS-DT Korea, South	J4 Greece	S2 Bangladesh	WL Alaska
5N-5O Nigeria	DU-DZ Philippines	J5 Guinea-Bissau	S5 Slovenia	XA-XI Mexico
5R-5S Madagascar	E2 Thailand	J6 Saint Lucia	S7 Seychelles	XA-XI Revillagigedo
5T Mauritania	E3 Eritrea	J7 Dominica	S9 Sao Tome & Principe	XT Burkina Faso
5U Niger	E4 Palestine	J8 Saint Vincent	SA-SM Sweden	XU Cambodia
5V Togo	E5 Cook Is	JA-JS Japan	SN-SR Poland	XV Vietnam
5W Samoa	E6 Niue	JD1 Minami-Torishima	SØ* Western Sahara	XW Laos
5X Uganda	E7 Bosnia-Herzegovina	JD1 Ogasawara	ST Sudan	XX9 Macao
5Y-5Z Kenya	EA-EH Spain	JT-JV Mongolia	SU Egypt	XY-XZ Myanmar (Burma)
6D-6J Mexico	EA6-EH6 Balearic Is	JW Svalbard	SV-SZ Greece	YA Afghanistan
6K-6N Korea, South	EA8-EH8 Canary Is	JX Jan Mayen	SV/A Mount Athos	YB-YH Indonesia
6V-6W Senegal	EA9-EH9 Ceuta & Melilla	JY Jordan	SV5 Dodecanese	YI Iraq
6Y Jamaica	EI-EJ Ireland	K U.S.A.	SV9 Crete	YJ Vanuatu
7J-7N Japan	EK Armenia	KC4 Antarctica	T19 Cocos Is	YK Syria
7O Yemen	EL Liberia	KG4 Guantanamo Bay	T2 Tuvalu	YL Latvia
7P Lesotho	EM-EO Ukraine	KH1 Baker & Howland Is	T3Ø Western Kiribati Is	YM Turkey
7Q Malawi	EP Iran	KH2 Guam	T31 Central Kiribati Is	YN Nicaragua
7S, 8S Sweden	ER Moldova	KH3 Johnston Is	T32 Eastern Kiribati Is	YO-YR Romania
7T-7Y Algeria	ES Estonia	KH4 Midway Is	T33 Banaba Is	YS El Salvador
7Z Saudi Arabia	ET Ethiopia	KH5 Palmyra & Jarvis Is	T4 Cuba	YT-YU Serbia
8J-8N Japan	EU-EW Belarus	KH5K Kingman Reef	T5 Somalia	YV-YY Venezuela
8P Barbados	EX Kyrgyzstan	KH6-KH7 Hawaii	T6 Afghanistan	YVØ Aves Is
8Q Maldives	EY Tajikstan	KH7K Kure Is	T7 San Marino	Z2 Zimbabwe
8R Guyana	EZ Turkmenistan	KH8 American Samoa	T8 Palau	Z3 Macedonia
9A Croatia	F France	KH8 Swains Is	TA-TC Turkey	Z6 Kosovo
9G Ghana	FG Guadeloupe	KH9 Wake Is	TD Guatemala	Z8 South Sudan
9H Malta	FH Mayotte	KHØ North Mariana Is	TE Costa Rica	ZA Albania
9I-9J Zambia	FJ Saint Barthelemy	KL Alaska	TF Iceland	ZB Gibraltar
9K Kuwait	FK New Caledonia	KP1 Navassa Is	TG Guatemala	ZC4 U.K. Sov. Base on Cyprus
9L Sierra Leone	FK/C Chesterfield Is	KP2 Virgin Is	TI Costa Rica	ZD7 Saint Helena Is
9M2-9M4 West Malaysia	FM Martinique	KP3-KP4 Puerto Rico	TJ Cameroon	ZD8 Ascension Is
9M6-9M8 East Malaysia	FO French Polynesia	KP5 Desecheo Is	TK Corsica	ZD9 Tristan da Cunha & Gough Is
9MØ Spratly Is	FO/A Austral Is	LA-LN Norway	TL Central African Rep.	ZF Cayman Is
9N Nepal	FO/C Clipperton Is	LO-LW, LU Argentina	TN Congo, Rep. of	ZK3 Tokelau Is
9Q-9T Congo, Dem. Rep. of	FO/M Marquesas Is	LU/Z South Shetland Is, So Georgia Is, So Orkney Is, So Sandwich Is	TR Gabon	ZL-ZM New Zealand
9U Burundi	FP Saint Pierre & Miquelon		TT Chad	ZL7 Chatham Is
9V Singapore	FR Reunion Is		TU Cote d'Ivoire (Ivory Coast)	ZL8 Kermadec Is
9X Rwanda	FS Saint Martin	LX Luxembourg	TY Benin	ZL9 Auckland & Campbell Is
9Y-9Z Trinidad & Tobago	FT/E Juan de Nova & Europa Is	LY Lithuania	TZ Mali	ZP Paraguay
A2 Botswana	FT/G Glorioso Is	LZ Bulgaria	UA-UI 1-7 European Russia	ZR-ZU South Africa
A3 Tonga	FT/J Juan de Nova & Europa Is	M England	UA2F, UA2K Kaliningrad	ZS8 Prince Edward & Marion Is
A4 Oman	FT/T Tromelin Is	MD Isle of Man	UA-UI 8-Ø Asiatic Russia	
A5 Bhutan	FT5W Crozet Is	MI, MN Northern Ireland	UJ-UM Uzbekistan	
A6 United Arab Emirates	FT5X Kerguelen Is	MJ Jersey	UN-UQ Kazakstan	
A7 Qatar	FT5Z Amsterdam & St. Paul Is	MM Scotland	UR-UZ Ukraine	
A9 Bahrain	FW Wallis & Futuna Is	MU Guernsey	V2 Antigua & Barbuda	
AA-AK U.S.A.	FY French Guiana	MW Wales	V3 Belize	
AP Pakistan	G England	N U.S.A.	V4 Saint Kitts & Nevis	
B China	GD Isle of Man	NH6-NH7 Hawaii	V5 Namibia	
BS7H Scarborough Reef	GI, GN Northern Ireland	NL Alaska	V6 Micronesia	
	GJ, GH Jersey	OA-OC Peru	V7 Marshall Is	

\* A special unofficial callsign used for Awards purposes by amateur radio operators

## ITU Phonetic Alphabet

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

## Common Q Signals

QTH	Location	"What's your QTH?"
QRZ	Who is calling me?	"KE7XXX QRZ?"
QRP	Low Power	"I'm running QRP from Washington" (<5 watts on HF, 10 on VHF)
QSY	Change Frequency	"Can you QSY up to 10 (kHz)?"
QSO	Conversation/Contact	"Thanks for the QSO"
QRM	Man-made Noise	"I have a lot of QRM here in the car" / <i>QRN</i> - Atmospheric Noise - "Lots of QRN today"
QSL	Acknowledge Receipt	"Copy KE7XXX in Redmond, Washington. QSL?" Response: "QSL Redmond, Washington"



The Southern California Repeater List published by the JPL Amateur Radio Club can be found at:  
<http://rpترلist.w6jpl.ampr.org>

## Programmer - Gordo's Top 100 For Baofeng UV-5R

	Name	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Tone Mode	CTCSS	Rx CTCSS	Tx Power
0	GORDO	144.33000	144.33000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
1	1465200	146.52000	146.52000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
2	1465500	146.55000	146.55000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
3	1465800	146.58000	146.58000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
4										
5	4460000	446.00000	446.00000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
6	ALERT 1	445.40000	440.40000	5.00 MHz	Minus	FM	Tone	118.8 Hz	118.8 Hz	High
7	ALERT 2	446.88000	441.88000	5.00 MHz	Minus	FM	Tone	192.8 Hz	192.8 Hz	High
8	ALERT 3	446.98000	441.98000	5.00 MHz	Minus	FM	Tone	156.7 Hz	156.7 Hz	High
9	ANAHEIM	146.79000	146.19000	600 kHz	Minus	FM	Tone	107.2 Hz	67.0 Hz	High
10	ARALB	146.74500	146.14500	600 kHz	Minus	FM	Tone	156.7 Hz	67.0 Hz	High
11	AVALON	448.40000	443.40000	5.00 MHz	Minus	FM	Tone	110.9 Hz	110.9 Hz	High
12	BALDWN	146.92500	146.32500	600 kHz	Minus	FM	Tone	114.8 Hz	67.0 Hz	High
13	CASTRO	147.22500	147.82500	600 kHz	Plus	FM	Tone	94.8 Hz	94.8 Hz	High
14	CATALNA	147.09000	147.69000	600 kHz	Plus	FM	Tone	79.7 Hz	79.7 Hz	High
15	CLARA 1	145.22000	144.62000	600 kHz	Minus	FM	Tone	103.5 Hz	103.5 Hz	High
16	CLARA 2	448.92000	443.92000	5.00 MHz	Minus	FM	Tone	91.5 Hz	91.5 Hz	High
17	CRSLINE	146.85000	146.25000	600 kHz	Minus	FM	Tone	146.2 Hz	146.2 Hz	High
18	DARN 2M	147.36000	147.96000	600 kHz	Plus	FM	Tone	103.5 Hz	103.5 Hz	High
19	DISNEY1	146.94000	146.34000	600 kHz	Minus	FM	Tone	131.8 Hz	131.8 Hz	High
20	DISNEY2	445.60000	440.60000	5.00 MHz	Minus	FM	Tone	103.5 Hz	103.5 Hz	High
21	FONTAIN	145.26000	144.66000	600 kHz	Minus	FM	Tone	136.5 Hz	136.5 Hz	High
22	FULLER1	146.97000	146.37000	600 kHz	Minus	FM	Tone	136.5 Hz	67.0 Hz	High
23	FULLER2	147.97500	147.37500	600 kHz	Minus	FM	Tone	100.0 Hz	67.0 Hz	High
24	HOSPITAL	146.97000	146.37000	600 kHz	Minus	FM	Tone	136.5 Hz	136.5 Hz	High
25	HUNTBCH	145.14000	144.54000	600 kHz	Minus	FM	Tone	127.3 Hz	127.3 Hz	High
26	JSTONE	146.82000	146.22000	600 kHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
27	JPL LAB	147.15000	147.75000	600 kHz	Plus	FM	Tone	131.8 Hz	131.8 Hz	High
28	KELLER	146.38500	146.98500	600 kHz	Plus	FM	Tone	146.2 Hz	146.2 Hz	High
29	KNOTTS	445.52000	440.52000	5.00 MHz	Minus	FM	Tone	85.4 Hz	85.4 Hz	High
30	LADCS 1	145.30000	144.70000	600 kHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
31	LADCS 2	147.27000	147.87000	600 kHz	Plus	FM	Tone	100.0 Hz	100.0 Hz	High
32	LONGBCH	146.79000	146.19000	600 kHz	Minus	FM	Tone	103.5 Hz	67.0 Hz	High
33	MESAC	147.06000	147.66000	600 kHz	Plus	FM	Tone	100.0 Hz	100.0 Hz	High
34	NEWPORT	145.16000	144.56000	600 kHz	Minus	FM	Tone	156.7 Hz	156.7 Hz	High
35	OCRACES	146.89500	146.29500	600 kHz	Minus	FM	Tone	136.5 Hz	136.5 Hz	High
36	PALOVER	145.38000	144.78000	600 kHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
37	REDONDO	145.32000	144.72000	600 kHz	Minus	FM	Tone	114.8 Hz	114.8 Hz	High
38	SANPED	449.98000	444.98000	5.00 MHz	Minus	FM	None	67.0 Hz	67.0 Hz	High
39	SNDIEGO	146.64000	146.04000	600 kHz	Minus	FM	Tone	107.2 Hz	107.2 Hz	High
40	SEALBCH	146.80500	146.20500	600 kHz	Minus	FM	Tone	162.2 Hz	162.2 Hz	High
41	SIGHILL	146.14500	146.74500	600 kHz	Plus	FM	Tone	156.7 Hz	156.7 Hz	High
42	SUNSET	145.44000	144.84000	600 kHz	Minus	FM	Tone	136.5 Hz	136.5 Hz	High
43	SOARA 1	145.24000	144.64000	600 kHz	Minus	FM	Tone	110.9 Hz	110.9 Hz	High
44	SOARA 2	147.64500	147.04500	600 kHz	Minus	FM	Tone	110.9 Hz	110.9 Hz	High
45	SUPER 1	446.32000	441.32000	5.00 MHz	Minus	FM	Tone	110.9 Hz	110.9 Hz	High
46	SUPER 2	446.22000	441.22000	5.00 MHz	Minus	FM	Tone	123.0 Hz	123.0 Hz	High
47	TRW VHF	145.32000	144.72000	600 kHz	Minus	FM	Tone	114.8 Hz	114.8 Hz	High
48	TRW UHF	447.00000	442.00000	5.00 MHz	Minus	FM	None	67.0 Hz	67.0 Hz	High
49	W6RO R	449.78000	444.78000	5.00 MHz	Minus	FM	Tone	131.8 Hz	67.0 Hz	High
50	W6RO S	145.51000	145.51000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
51	WALA R1	145.38000	144.78000	600 kHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
52	WALA R2	145.40000	144.80000	600 kHz	Minus	FM	Tone	103.5 Hz	103.5 Hz	High
53	WILSON	449.70000	444.70000	5.00 MHz	Minus	FM	None	67.0 Hz	67.0 Hz	High
54	WINSUN1	147.21000	147.81000	600 kHz	Plus	FM	Tone	100.0 Hz	100.0 Hz	High

## Programmer - Gordo's Top 100 For Baofeng UV-5R

	Name	Receive Frequency	Transmit Frequency	Offset Frequency	Offset Direction	Operating Mode	Tone Mode	CTCSS	Rx CTCSS	Tx Power
55	WINSUN2	449.16000	444.16000	5.00 MHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
56	WIN OC	448.06000	443.06000	5.00 MHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
57	WINVSTA	448.80000	443.80000	5.00 MHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
58	WINOTAY	447.64000	442.64000	5.00 MHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
59	WIN OAT	446.46000	441.46000	5.00 MHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
60	WINSANT	447.58000	442.58000	5.00 MHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
61	FRS 01	462.56250	462.56250		Simplex	FM	None	67.0 Hz	67.0 Hz	High
62	FRS 02	462.58750	462.58750		Simplex	FM	None	67.0 Hz	67.0 Hz	High
63	FRS 03	462.61250	462.61250		Simplex	FM	None	67.0 Hz	67.0 Hz	High
64	FRS 04	462.63750	462.63750		Simplex	FM	None	67.0 Hz	67.0 Hz	High
65	FRS 05	462.66250	462.66250		Simplex	FM	None	67.0 Hz	67.0 Hz	High
66	FRS 06	462.68750	462.68750		Simplex	FM	None	67.0 Hz	67.0 Hz	High
67	FRS 07	462.71250	462.71250		Simplex	FM	None	67.0 Hz	67.0 Hz	High
68	FRS 08	467.56250	467.56250		Simplex	FM	None	67.0 Hz	67.0 Hz	High
69	FRS 09	467.58750	467.58750		Simplex	FM	None	67.0 Hz	67.0 Hz	High
70	FRS 10	467.61250	467.61250		Simplex	FM	None	67.0 Hz	67.0 Hz	High
71	FRS 11	467.63750	467.63750		Simplex	FM	None	67.0 Hz	67.0 Hz	High
72	FRS 12	467.66250	467.66250		Simplex	FM	None	67.0 Hz	67.0 Hz	High
73	FRS 13	467.68750	467.68750		Simplex	FM	None	67.0 Hz	67.0 Hz	High
74	FRS 14	467.71250	467.71250		Simplex	FM	None	67.0 Hz	67.0 Hz	High
75	GMRS 1	462.55000	462.55000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
76	GMRS 2	462.57500	462.57500		Simplex	FM	None	67.0 Hz	67.0 Hz	High
77	GMRS 3	462.60000	462.60000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
78	GMRS 4	462.62500	462.62500		Simplex	FM	None	67.0 Hz	67.0 Hz	High
79	GMRS 5	462.65000	462.65000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
80	GMRS 6	462.67500	462.67500		Simplex	FM	None	67.0 Hz	67.0 Hz	High
81	GMRS 7	462.70000	462.70000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
82	GMRS 8	462.72500	462.72500		Simplex	FM	None	67.0 Hz	67.0 Hz	High
83	MURS 1	151.82000	151.82000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
84	MURS 2	151.88000	151.88000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
85	MURS 3	151.94000	151.94000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
86	MURS 4	154.57000	154.57000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
87	MURS 5	154.60000	154.60000		Simplex	FM	None	67.0 Hz	67.0 Hz	High
88	WX 10	163.27500			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
89	WX 09	161.77500			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
90	WX 08	161.65000			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
91	WX 07	162.52500			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
92	WX 06	162.50000			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
93	WX 05	162.45000			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
94	WX 04	162.42500			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
95	WX 03	162.47500			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
96	WX 02	162.40000			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
97	WX 01	162.55000			No Transmit	FM	None	67.0 Hz	67.0 Hz	High
98	BARN EQ	447.54000	442.54000	5.00 MHz	Minus	FM	Tone	100.0 Hz	100.0 Hz	High
99	QUAKES	446.90000	441.90000	5.00 MHz	Minus	FM	Tone	110.9 Hz	67.0 Hz	High
100	KNX1070	450.70000			No Transmit	FM Narrow	None	67.0 Hz	67.0 Hz	High
101	KFI 640	450.72500			No Transmit	FM Narrow	None	67.0 Hz	67.0 Hz	High



## Gordo's Top 100 For Baofeng UV-5R

	Name	Scan Add	Comment
0	GORDO	Skip	Gordon West WB6NOA Simplex Channel
1	1465200	Skip	2-Meter Simplex Channel
2	1465500	Skip	Newport Disaster Prep Simplex Channel
3	1465800	Skip	2-Meter Simplex Channel
4			
5	4460000	Scan	440 Simplex Calling Channel
6	ALERT 1	Skip	Irvine CA Disaster Repeater #1
7	ALERT 2	Skip	Irvine CA Disaster Repeater #2
8	ALERT 3	Skip	Irvine CA Disaster Repeater #3
9	ANAHEIM	Skip	Anaheim CA VHF Amateur Repeater
10	ARALB	Skip	Amateur Radio Association of Long Beach CA
11	AVALON	Skip	Avalon, Catalina Island CA UHF Repeater (Avalon City Only)
12	BALDWN	Skip	Baldwin Park CA VHF Repeater
13	CASTRO	Skip	Castro Peak VHF Repeater (Malibu CA)
14	CATALNA	Skip	CARA Amateur Repeater at Catalina Airport (Open)
15	CLARA 1	Skip	Claremont Repeater Association (Red Cross & Others)
16	CLARA 2	Skip	Claremont Repeater Association (Members Only)
17	CRSLINE	Skip	Crestline VHF Repeater (Big Bear CA)
18	DARN 2M	Skip	Disaster Amateur Radio Network VHF Repeater
19	DISNEY1	Skip	Disneyland Buena Park CA VHF Repeater
20	DISNEY2	Skip	Disneyland Buena Park CA UHF Repeater
21	FONTAIN	Skip	Fountain Valley CA VHF Repeater (Orange County)
22	FULLER1	Skip	Fullerton CA VHF Repeater #1
23	FULLER2	Skip	Fullerton CA VHF Repeater #2
24	HOSPITAL	Skip	HEAR Hospital Emergency Amateur Disaster Radio Network
25	HUNTBCH	Skip	Huntington Beach CA VHF Repeater
26	JSTONE	Skip	Inland Empire VHF Repeater (Riverside County CA)
27	JPL LAB	Skip	JPL Space Laboratory Site VHF Repeater
28	KELLER	Skip	Keller Peak VHF Repeater (San Bernardino CA)
29	KNOTTS	Skip	Knotts Berry Farm Amusement Park UHF Repeater
30	LADCS 1	Skip	LA County Sheriff Disaster Communications Repeater #1
31	LADCS 2	Skip	LA County Sheriff Disaster Communications Repeater #2
32	LONGBCH	Skip	Torrance / Long Beach CA VHF Repeater
33	MESAC	Skip	MESAC VHF Repeater (Costa Mesa CA)
34	NEWPORT	Skip	Newport Beach CA Repeater
35	OCRACES	Skip	Orange County CA RACES
36	PALOVER	Skip	Palos Verde Peninsula VHF Repeater
37	REDONDO	Skip	Redondo Beach CA VHF Repeater
38	SANPED	Skip	San Pedro UHF Repeater
39	SNDIEGO	Skip	San Diego CA VHF Repeater
40	SEALBCH	Skip	Seal Beach CA VHF Repeater
41	SIGHILL	Skip	Signal Hill Repeater For W6RO & Long Beach Red Cross
42	SUNSET	Skip	Sunset Ridge Amateur VHF Repeater (Pomona CA)
43	SOARA 1	Skip	SOARA Repeater #1
44	SOARA 2	Skip	SOARA Repeater #2
45	SUPER 1	Skip	Super System Linking Repeater #1
46	SUPER 2	Skip	Super System Linking Repeater #2
47	TRW VHF	Skip	TRW Redondo Beach CA VHF Repeater
48	TRW UHF	Skip	TRW Redondo Beach CA UHF Repeater
49	W6RO R	Skip	W6RO Queen Mary UHF Repeater (Signal Hill CA)
50	W6RO S	Skip	W6RO Queen Mary Simplex Channel
51	WALA R1	Skip	Western Amateur Linking Association Repeater
52	WALA R2	Skip	Western Amateur Repeater Association Skywarn Repeater
53	WILSON	Skip	Mount Wilson UHF Repeater
54	WINSUN1	Skip	WIN System Sunset VHF Repeater

## Gordo's Top 100 For Baofeng UV-5R

	Name	Scan Add	Comment
55	WINSUN2	Skip	WINSystem Sunset UHF Repeater
56	WIN OC	Skip	WIN System Orange County UHF Repeater
57	WINVSTA	Skip	WIN System Vista CA UHF Repeater
58	WINOTAY	Skip	WIN System San Diego UHF Repeater
59	WIN OAT	Skip	WIN System Oat Mountain UHF Repeater
60	WINSANT	Skip	WIN System Santa Ana UHF Repeater
61	FRS 01	Skip	Family Service Radio
62	FRS 02	Skip	Family Service Radio
63	FRS 03	Skip	Family Service Radio
64	FRS 04	Skip	Family Service Radio
65	FRS 05	Skip	Family Service Radio
66	FRS 06	Skip	Family Service Radio
67	FRS 07	Skip	Family Service Radio
68	FRS 08	Skip	Family Service Radio
69	FRS 09	Skip	Family Service Radio
70	FRS 10	Skip	Family Service Radio
71	FRS 11	Skip	Family Service Radio
72	FRS 12	Skip	Family Service Radio
73	FRS 13	Skip	Family Service Radio
74	FRS 14	Skip	Family Service Radio
75	GMRS 1	Skip	General Mobile Radio Service
76	GMRS 2	Skip	General Mobile Radio Service
77	GMRS 3	Skip	General Mobile Radio Service
78	GMRS 4	Skip	General Mobile Radio Service
79	GMRS 5	Skip	General Mobile Radio Service
80	GMRS 6	Skip	General Mobile Radio Service
81	GMRS 7	Skip	General Mobile Radio Service
82	GMRS 8	Skip	General Mobile Radio Service
83	MURS 1	Skip	Multi-Use Radio Service
84	MURS 2	Skip	Multi-Use Radio Service
85	MURS 3	Skip	Multi-Use Radio Service
86	MURS 4	Skip	Multi-Use Radio Service
87	MURS 5	Skip	Multi-Use Radio Service
88	WX 10	Skip	NOAA Weather Canada
89	WX 09	Skip	NOAA Westher Canada
90	WX 08	Skip	NOAA Weather Canada
91	WX 07	Skip	NOAA Weather Avalon, Catalina Island CA
92	WX 06	Skip	NOAA Weather Victorville CA
93	WX 05	Skip	NOAA Weather Santa Ana CA
94	WX 04	Skip	NOAA Weather San Bernardino CA
95	WX 03	Skip	NOAA Weather Santa Barbara CA Marine
96	WX 02	Skip	NOAA Weather San Diego CA
97	WX 01	Skip	NOAA Weather Los Angeles CA
98	BARN EQ	Skip	BARN Earthquake Alert System Repeater
99	QUAKES	Skip	Earthquake Alert UHF Repeater
100	KNX1070	Skip	KNX 1070 News Radio Los Angeles CA
101	KFI 640	Skip	KFI 640 Talk Radio Los Angeles CA

<http://www.uv-5r.com/>  
<http://www.testcall.com/222-1111.html>

## Programming the Baofeng UV5-R

I ran into a lot of frustration while learning how to program this radio. I thought I would put together a quickie guide on how to do that. Of course it is a lot easier to program it with the chirp software and a computer, but if you are not near a computer or don't have the cable and have to program manually, Here goes! The how to guides left out some of the not so obvious nuances.

I am only going to cover basic menu logic and entering info into a 'channel' since that is the most frustrating. A short list of useful numbers (represented by X) is given below.

Make sure you are in frequency mode by pressing the orange vfo/mr button; radio will 'speak' frequency mode.

First the menu system logic. The radio 'spoken' terms are given in brackets. The typical sequence follows.

Menu [menu] = Opens menu system  
X [Beep] = First menu selection step  
X [Beep] = Second menu selection step (if required)  
Up/down [Beep] = to make your selections (some selections may be entered directly from the keypad).  
Menu [Confirm] = Check to see if you want to make the change  
Exit [Beep] = Enters your confirmation.

Now for entering a setup into a 'channel' First of course you have to have all the information correct: Receive frequency, Xmit frequency, offset +/-, and offset frequency, lastly any ctss tones.  
Once all that is set here is how to save it into a channel:

Firstly, to save a setup into a channel the channel must be free. This is the most common stumbling block. If the channel is already in use you can go through all the steps and it wont save. Frustrating.

Clearing a channel:

Menu [Menu]  
2 [Beep]  
8 [Beep]  
Menu [Delete channel]  
up/down [Beep] = Choose channel to be cleared  
Menu [Confirm] = Check to see if you want to make the change. If you do not want to change just wait a few seconds.  
EXIT [Beep] = Executes and clears the channel

Now that we have an open channel we can enter the setup into it. There are actually two pieces of info to be stored, the receive info and the transmit info. This is a little confusing at first and easy to get crossed up. Make sure you have the proper setup displayed in frequency mode. This was not mentioned in the other quicky guides and it took me a little while to figure it all out.

Entering a setup into a channel:

First step: receive memory:

Menu [Menu]



2 [Beep]  
7 [Beep]  
Menu [Memory Channel]  
up/down [Beep] = Select the cleared channel in which you want to save  
Menu [Recieve Memory] = Make sure it speaks receive memory first!  
EXIT [Beep] = Executes and saves the receive memory

Second step xmit memory:

Press the scan button briefly, this should display the proper xmit frequency with the proper offset (if you set it right) the proper xmit frequency must be displayed!

Menu [Menu]  
2 [Beep]  
7 [Beep]  
Menu [Memory Channel] = Should be already set to the one you used for receive memory  
Menu [Transmitting Memory] = Make sure it speaks Transmitting memory  
EXIT [Beep] = Executes and saves the transmitting memory

The setup including offsets, tones, etc. should now be stored in the channel you chose. If it did not save you probably did not clear the channel first.

A quick 'cheat sheet' for memory steps

Freuency is set directly from the key pad whilst in frequency mode.

Shift +/-/off = 2,5  
Offset freq. = 2,6  
Tone = 1,3

Clear a channel = 2,8  
Store a channel = 2,7

Those are the basic ones; there are many more. Be sure to visit the following site for the excellent 'how to guides' for further guidance!

<http://www.uv-5r.com/>  
<http://www.miklor.com/uv5r/>  
"Plumber's Delight" 2m J-Pole antenna  
Buddipole



[Menu](#)
[Dossier](#)
[Science](#)
[Technique](#)
[Art](#)

[Home](#)
[French Pages](#)
[Reports & Reviews](#)
[Radio Amateur](#)
[Radio Astronomy](#)
[Ephemerides](#)
[Search in this Site](#)
[About the Author](#)
[1001 Links](#)
[What's New ?](#)
[Translator](#)

## The radio propagation

### Propagation conditions on bands (IV)

Before to extend our review on upper bands (V/UHF and special modes), till stop a second in the HF spectrum. Instead of speaking of propagation in terms of ionospheric layers, that nobody can really materialize, amateurs and listeners are used to speak in terms of frequencies or bands. Working on 14.115 MHz or 14.340 MHz makes no difference except when you are searching for a free frequency to work or to schedule a QSO, Hi ! It is thus simpler to say that one works on the 20-meter band.

Each band shows some specific properties interesting to know when working on HF. Here they are.

#### 160m band (1.8 MHz)

Not much shorter than medium waves, at daytime the "top band" is deeply affected by the D-layer absorption and only waves entering the ionosphere at very high angle can be reflected to the ground. At daytime this band is thus mainly dedicated to local QSOs by ground waves up to distances reaching about 120 km. It is thus relatively quiet compared to the other HF bands. Checking my logs, I worked on this band most of the time after the sunset. Indeed, at night the D-layer disappearing, low-angle signals reflect easier on the F-layer, and DX contacts are possible at several thousands kilometers at the condition to use a suited antenna system. So this is a band to mainly use at night, and if you can, in winter especially during the cycles of weak solar activities to reduce atmospheric noises. It is affected by the sunrise/sunset, weather conditions (noise of thunderstorm) and the electron gyro-frequency.

#### 80m band (3.5 MHz)

This band is similar to the 160m but the frequency increasing, the D-layer absorption begin to decrease as it is proportional to the inverse square of the frequency. At daytime most contacts are worked with near countries, up to about 2000 km from your QTH. At night or using the gray line it is possible to exceed 9000 km (e.g. Europe to W, UA or JA). If you wake up in winter a few hours before the sunrise to avoid atmospheric noises you can work most DX stations (e.g. VK, ZL from Europe). In Region 1 the frequencies ranging between 3790-3800 kHz are usually dedicated to DX hunters.

#### 40m band (7 MHz)

This band is still under the influence of the D-layer and is the lowest band showing an appreciable skip distance, up to 500 km at night. At noon it is hard to work station located over 800 km away, while working with the gray line or at night, this band is open to DX contacts. This band is slightly influenced by 11-year solar cycle. Atmospheric noises are still present but not as strong as on the lower bands. QSOs can however be difficult to confirm during the summer months but signals are not completely overridden by static. This is also one of the most crowded band and do not be surprised to find in Europe and during weekends each station within 1 kHz or so from each another.

Hopefully from March 29, 2009, in Region 1 this band will be accessible to amateurs up to 7200 kHz. Note that it is already open to amateurs to 7300 kHz in North and South America.

#### 30m band (10 MHz)

Conditions are similar to the 40m band but it works better in summer showing some of the properties of the 20m band. As communications reach 1600 km at daytime and 12000 km or more at night, this band is considered as open 24 hours a day. It is also band the least affected by variations of the solar cycle. However this band is affected by the ionization level of E and F-layers and at night, during the minimum of the solar cycle, it is regularly above the MUF for most DX paths, becoming thus the higher workable frequency for daytime communications. At very few exceptions (see [next insert](#)) this band is reserved to digimodes and CW.

#### 20m band (14 MHz)

If you ask to active amateurs, including listeners, what is the band they use the most, taking all modes together and over a full solar cycle, without hesitation all will place the 20 meter band first for its "overall performance".



Indeed, the 20m band is the DX band per excellence and is considered by many hams as the most reliable band for hunting DX stations because atmospheric noises are weak.

At some rare exceptions (blackouts) whatever your position in the 11-year solar cycle, world-wide communications are open at daytime on the 20m band. It is practically usable all the day long as soon as there is propagation, and mainly in summer, and all the more during periods of high solar activity. This is only during the winter months in condition of low solar activity that this band closes down in the late afternoon and is unusable at night.

The 20m band shows an appreciable skip distance reaching about 700 km at daytime and exceeding 1600 km at night. It is thus not suited to local QSOs. This can partly be solved placing the antenna at low height to get a high takeoff angle.

#### 17m band (18 MHz)

This band is similar to the 15m band in many respects although its activity is affected by the 11-year solar cycle but not as pronounced. During the maximum of the solar activity, this band is open all the day, up to well after the sunset. When the solar activity decreases this band closes earlier, just after the sunset. At the minimum of the solar cycle, this band opens to middle or equatorial latitudes, allowing north-south contacts but mainly around noon. This band is this mainly open at daytime and regularly opens before the others. The skip distance reaches 1200 km at daytime and disappears at night.

#### 15m band (21 MHz)

This band works in the same conditions as the 17m band and is considered by most amateurs as a quieter alternative to the 20m band. It shows however a greater sensitivity to the fluctuations of the solar cycle. It is mainly used at daytime but during the peaks of the solar activity DX contacts can extend to the night. On the contrary during the minimum of the solar cycle, this band can be closed excepted for a few trans-equatorial paths. With the 12 and 10m this band is also subject to a weak E-sporadic activity mainly in early summer and mid-winter. The skip distance reaches 1300 km at daytime and vanishes at night.

#### 12m band (24 MHz)

This band is very depending of the solar cycle and combines the best from the 15 and 10m bands. One year before the paroxysm of the solar activity and up to one year after this peak, this band allows DX contacts until after the sunset with practically any kind of antenna. On the contrary, when the solar activity slow down, this band is open at mid and low latitudes but only at daytime with very few openings after the sunset. Near the minimum of the solar cycle this band becomes unusable, excepting at daytime for the highest latitudes with some north-south openings. This band is open to E-sporadic traffic between the late spring and early winter. The skip distance reaches 1600 km at daytime and vanishes at night.

#### 10m band (28 MHz)

This band works in the same conditions as the 12m band but is characterized by a great variability according the solar activity. During the peaks of the solar activity DX contacts can be established with very low power and over 12000 km away. It is mainly a daytime band but remains open a few hours after sunset. During moderate solar activity this band open near noon for some trans-equatorial communications but is closed for the higher latitudes. During the minimum of the solar activity this band is straight out dead. There are however some exceptional openings for ionoscat, meteor scatter and E-sporadic. This latter occurs mainly between April and early August allowing multihop communication up to 4100 km. This band is relatively quiet compared to the 15m band for example but it works globally very well for DX communications throughout the solar cycle. Unfortunately more and more CB, pirates and intruders occupy the lower part of this band (11m or ~27 MHz). The skip distance reaches 2000 km at daytime.

[To download : Band Plan - IARU Region 1 HF Band Plan](#)  
[The Electromagnetic spectrum, from 31.2 mHz to 6.52 EHz](#)  
[Radio spectrum bandplan, from 3 kHz to 30 GHz](#)

#### Traffic via the E-Sporadic

With the E-sporadic traffic we enter the world of VHF communications although some "openings" also exist in the upper HF frequencies. Traffic via the E-Sporadic layer (Es) is an ideal experience for the 6 m band where it displays all its potential, still more than on the classical 2 m band, and it is open earlier too : if there is no Es activity on the 6 m band don't hope for a chance on the 2 m. The origin of these sporadic clouds of ionized particles is unknown and several theories have been suggested so far.

Whatever the source of the phenomenon, usually traffic via Es works best in early summer and mid-winter in the fore or afternoon and may last from a few minutes to several hours. Usually this is a single hop communication but exceptionnally we can operate multi-hop Es. It can occasionally be observed in HF bands between the 15m and 10m band but with an activity less pronounced than on VHF. Sometimes Es allows to work until past midnight on VHF, propagating signals extremely loud and sudden on a regional scale, but it disappears suddenly too.

When E-sporadic layers decay we observe also the raising of Aurora or E-layer FAI.

#### Field Alignment Irregularities, FAI

Another amazing propagation is the Field Alignment Irregularities, FAI for short, that mainly concerns VHF. It finds its origin in irregularities in the ionization of the E and F-layers (above 100 km aloft) that are aligned along the lines of the geomagnetic field.

These irregularities parallel or adjacent to the geomagnetic equator mainly occur late in the afternoon when the F-layer begins to decay together with the MUF, which in turn allow to free electrons to align themselves along the geomagnetic field lines, which are nearly horizontal in this region.



W1AW, the antenna farm at ARRL HQ. 8 beam monobanders plus some dipoles

Like in FAI found in Aurora, E and F-layers FAI exhibit amazing characteristics with regard to VHF signals. These irregularities being rather strong, signals approaching these regions are scattered efficiently only they are parallel to the geomagnetic field lines. This occurs only for a signal path perpendicular to the geomagnetic equator, what is also true for VHF scattering from auroras. When these conditions of geometry and level of ionization are met, signals are reflected away in an specific azimuth equal to twice the right angles of each FAI region. When this phenomenon occurs, amateurs working on VHF bands above 50 MHz observe that a directive antenna has to be shifted from the remote station azimuth between 30° and about 110° in the anti-clockwise direction. The phenomenon is amazing and can confuse novice amateurs, thinking that their antenna system is faulty or that they are working a pirate station ! Imagine to contact Scandinavian stations pointing your beam to GB...very strange, doesn't it. Usual distances between north and south stations are ranging between 5000 and 8000 km.

Like in Aurora traffic, signals are distorted, weak, with fast QSB, and can be associated to a Doppler effect. Closer you are from the transmitter, higher will be the reflection zone. As these points of reflection don't move, you can steer your antenna over these locations in summer (between May and September) at the end of an Es opening to have some chances to work a FAI.

#### **Trans-Equatorial FAI**

During exceptional VHF openings some amateurs worked DX stations located 8000 km away in crossing the equator. Imagine : from Mexico to Brazil on 2 m ! This phenomenon seems occur when both stations are located symmetrically to the equator and experimenting a high level of electronic density at fall and spring during periods of solar maximum activity. By a lucky combination of ionospheric reflexions and refractions, at the time of equinoxes such trans-equatorial (TE) traffic seems possible but we have few information about such experiences.

Not all F-layers paths crossing the equator propagate via the T-E FAI. The ionization level of F-layers at daytime has to reach a threshold over the two stations located respectively north and south of the geomagnetic equator, that corollary, shows the highest MUF values on any given day over the Earth. In these very special conditions some F-layers paths cross the equator, extending their ionization bands up to 4000 km on each side of the geomagnetic equator. Hower to make a contact the path between both stations must be parallel to the geomagnetic field, not perpendicular.

The stations located over 30° of latitude north (or south) are usually too far of the geomagnetic equator to make use of F-layer FAI. Sometimes however, these latitudes can be worked via a sporadic-E hop even if signals are usually weak and typically exhibit the fluttery and hollow like sound of pure FAI.

At last, in bands of 17m and below (HF), during the minimum of the solar cycle Trans-Equatorial FAI are open during the day.

[Next chapter](#)

[Working with the Gray line](#)

Page [1](#) - [2](#) - [3](#) - [4](#) - [5](#) - [6](#) -

[Back to:](#)

[HOME](#)

[Copyright & FAQ](#)