



# Everything Else in Ham Radio

**Back to Basics 03/02/18**

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## What is “Everything Else”

- SOTA/POTA (Summits & Parks on the air)
- Working Satellites
- Contesting
- SDR (Software Defined Radio)
- WSPR (Weak Signal Propagation Reporting)
- RBN (Reverse Beacon Network)
- APRS (Automatic Packet Reporting System)
- QRP (operating with 5W or less)
- Digital Modes (PSK31, RTTY, FT8)
- Winlink (sending email via the HF bands)



# What is “Everything Else”

- Propagations Reports
- Clusters
- Vanity Call Sign Tools
- Typical Band Characteristics



# ARRL Tech License Privilege Expansion

Proposal sent to FCC 2/28/18 :

<http://www.arrl.org/news/arrl-requests-expanded-hf-privileges-for-technician-licensees>

- HF SSB privilege on 75m, 40m & 15m
  - 75 Phone 3.9 - 4.0 Mhz
  - 40 Phone 7.225 - 7.30 Mhz
  - 15 Phone 21.350 - 21.450 Mhz
- Digital & RTTY on 80m, 40m, 15m & 10m





# SOTA & POTA

<http://www.sota.org.uk>

Summits on the Air Joining In Online Resources Associations and Summits Blog Contact About SOTA Login



Welcome to **Summits on the Air!**

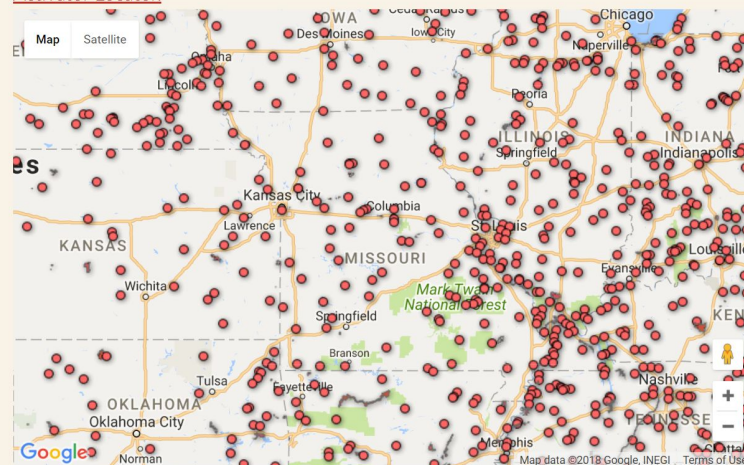
SOTA is an award scheme for radio amateurs that encourages portable operation in mountainous areas.

Quick links: [SOTAwatch](#) | [Database](#) | [Summit Listings](#) | [Shop](#) | [Mapping](#)

<http://parksontheair.com>

## Map of Parks on the Air Entities:

This map shows all the entities within the Parks on the Air (POTA) program. Entities are highlighted in red; click on them to view details. [View a full screen map](#). We are also developing a searchable map which uses geo-location to find your closest entities. [Use the Activator Locator](#).





# Satellites

## AMSAT Live OSCAR Satellite Status Page

[www.amsat.org](http://www.amsat.org)

This web page was created to give a single global reference point for all users in the Amateur Satellite Service to show the most up-to-date status of all satellites as actually reported in real time by users around the world. Please help others and keep it current every time you access a bird.

If you want to practice reporting without affecting the real data, please select the dummy-satellites AO-98 and AO-99.

About 19,300 results



### How to work amateur radio satellites with your handheld (HT) radio

WorldwideDX Radio Forum • 87K views • 6 years ago

AE6LX from <http://www.worldwidedx.com> gives detailed instructions and a demonstration on how to communicate with other hams



### Chasing the Satellites - Amateur radio SSB sat work

KC2U00 • 5.4K views • 1 year ago

Brothers K2FR and N2TEB Work the SSB **Satellites** over thanksgiving break from the Hudson valley of Newyork.



### How to Work Amateur Ham Radio Satellite w Baofeng UV5R MFJ on Saudisat SO-50

David Mercado • 160K views • 4 years ago

This video demonstrates requirements needed to communicate via Amateur **Ham Radio Satellite** using an inexpensive \$50 Baofeng



### Ham Radio AO-51 Satellite, again

K7AGE • 211K views • 10 years ago

SO-50 is a current alternative to AO-51 [http://www2.amsat.org/?page\\_id=1015](http://www2.amsat.org/?page_id=1015) AO-51 Update November 29, 2011 It is with a heavy

Transponder/Repeater active	Telemetry/Beacon only	No signal	Conflicting reports	ISS Crew (Voice) Active		
Name	Feb 18	Feb 17	Feb 16	Feb 15	Feb 14	Feb 13
CUTE-1			1	1		1
QIKCOM-1						
UKube-1	2 1	3 1 1	1 2 2		1	1
LilacSat-2		1		1		
FS-3	1	1 1	1 1 1		11 1	1 111
[A] AO-7	21	1	1	1		
[B] AO-7	11231221 1 3122 12	12 1 1211	311 2411	112222111	1111 2 211	
AO-92 L/v	23 2	1				
AO-92 U/v	1 25312212	471 15114111112	231211	1261 15 611	1241 64 12123511	22 22
[B] UO-11		1 1	2 1 1	1	1 12	1
RS-15	2		22		2	
IO-26					1	
AO-27		1 3				
FO-29	5 2 35212156231	2321 124212	1211	55422 42111	332 11131	4533 2241
XW-2A	111 111 2 1 11 2	12121 1 1	21 1	21 2	1 2 111	
XW-2B	312 11 1 311 11 1	231 1	31 11	12 1	313 11 1	
XW-2C	1311 11 11 11 1 1	131 1	41111	1111111 2	1 4 1 1	
XW-2D	2 1 11 121 1 1	322 1	121	31 1	231 1	
XW-2F	141 12 12 2 1	331 1	23111 1 1	1212 11 2	222 1 1	
NO-44	1 1	21		1 2	1	3
CAS-4A	11 1	11 1 1 11	211 2	1111	1 212	
CAS-4B	1	3 113 113 15 1	21 3 2	121122	31212 1 111	
SO-50	31 12 22 12 1131 2 2	1 1 1 3	111 11	12111 11 12 2 1		
HO-68	11					
AO-73	541 3 1 32 1 1	112 111	12 4 2 2211	1 2	1111 1 111 13 1	
EO-79						
AO-85	2412	11 1 131 11 1 2121	221 3412	111 223 2 11	12132	
IO-86	11112111	11111 21 11111 12	12 112	1112 1	1211	1
EO-88	1111	13 1 1 111 1	1 12	11 21	1 12 21 1	
AO-91	1 33312	3211 34 2 1141	122112 1 12	25111	22 1331 12121	14421
AO-98			1			
AO-99						
PicSat	1 1 1 1	1				
ISS-FM	125	11121		13	1	1
NO-84_Digi	12 11	211	2	1 1 1 1 3	1 1	1
XI-IV			1		1	1
DSTAR1		1				



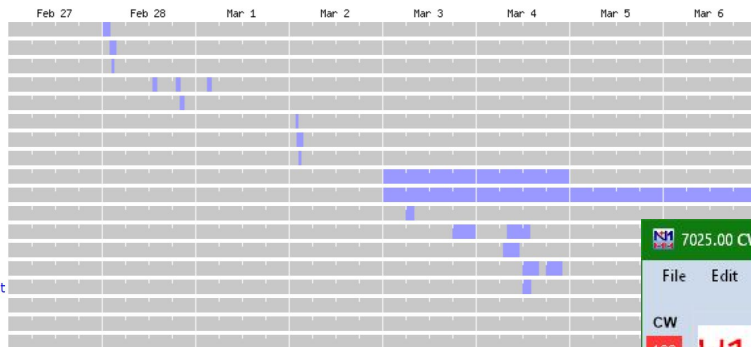
# Contesting

<http://contestcalender.com>

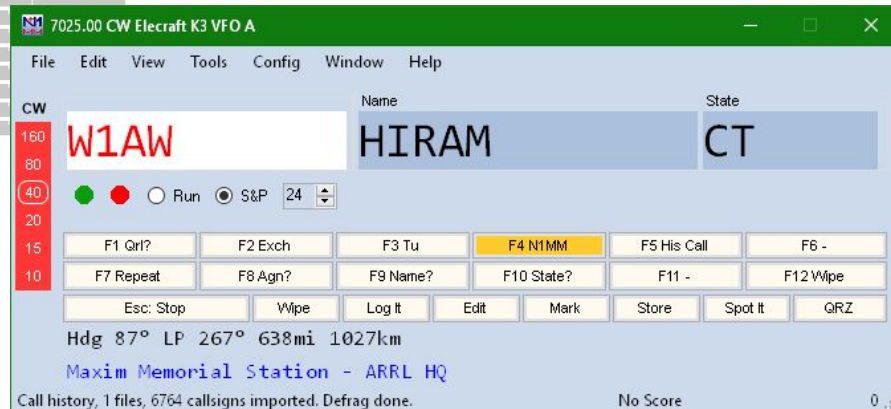
Home 8-Day 12-Month Perpetual State QSO Parties CW QRP Log Due Dates Historical Alphabetical Customize

Follow @wa7bnmcalendar February 19 - 26, 2018 February 27 - March 6, 2018 March 7 - 14, 2018

SKCC Sprint  
QRP Fox Hunt  
Phone Fray  
CWops Mini-CWT Test  
UKEICC 80m Contest  
NCCC RTTY Sprint  
QRP Fox Hunt  
NCCC Sprint  
ARRL Inter. DX Contest, SSB  
Novice Rig Roundup  
Wake-Up! QRP Sprint  
Open Ukraine RTTY Championship  
UBA Spring Contest, CW  
NSARA Contest  
SARL Hamnet 40m Simulated Emerg Contest  
RSGB 80m Club Championship, Data  
ARS Spartan Sprint  
AGCW YL-CW Party



<http://www.n1mm.com>



# Software Defined Radio Hardware



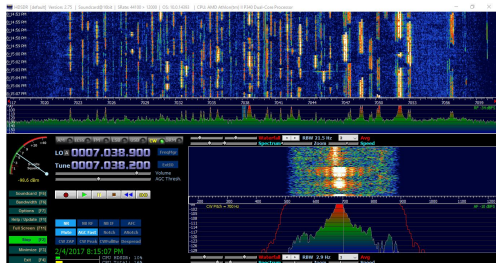
RTL-SDR - [www.rtl-sdr.com](http://www.rtl-sdr.com). Amazon \$25 bucks, can be used with almost any SDR software package. Good cheap entry level dongle.



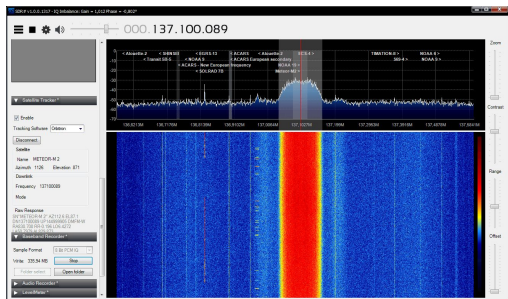
SDRPlay- [www.sdrplay.com](http://www.sdrplay.com) \$200, can be used with almost any SDR software package. Really good reviews with SDR community.



# Software Defined Radio



HDSDR - [www.hdsdr.de](http://www.hdsdr.de). Free SDR software, most popular, has built in drivers for most of the RTL-SDR dongles and IF output.



SDR# - [www.sdrplay.com](http://www.sdrplay.com). Free SDR software. Designed to work with Airplay SDR, but will work with almost any RTL-SDR hardware.

For Mac and Linux try the following SDR packages : Linrad & GQRX





# SDR - WebSDR

Welcome to the **KFS WebSDR** HF radio receiver system located 6 miles south of Half Moon Bay, California; maintained by Craig, W6DRZ, e-mail [w6drz@arrl.net](mailto:w6drz@arrl.net).  
A technical description, operating tips, propagation information, and a donation opportunity can all be found on the [ABOUT](#) page.  
More information on the worldwide WebSDR project can be found on [www.websdr.org](http://www.websdr.org).  
**Note:** On older browsers you need both *Java* and *JavaScript* enabled for this page to work properly. For a detailed discussion, click [here](#).

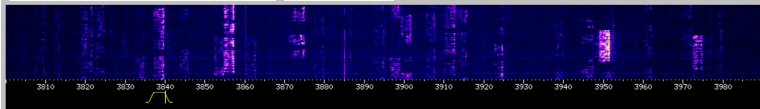
## KFS WebSDR NEWS:

(2 Jan) As of the New Year, this system has been renamed **KFS WebSDR** to better reflect its history and location.  
(27 Oct) Compact view of user display is now forced during the evening due to abuse.  
(6 Dec) Thanks to K6JEK, W6YDG, WW6D, AEA Inc, and K8OLS for their recent donations.

Please log in by typing your name or callsign here (it will be saved for later visits in a cookie):

View: ☐ all bands ☐ others slow ☒ one band ☐ blind

Allow keyboard: ☐



Frequency:  kHz

Band: ☐ 160 ☒ 75 ☐ 60 ☐ 40cw ☐ 40ph ☐ 20

Or tune by clicking/dragging/scrollwheel on the frequency scale.

### Memories:

(new)

-80.1 dBm, peak -80.1 dBm  
☐ mute ☐ squelch ☐ autotune

Volume:

Audio recording:

Signal strength plot: none ▼

### Mode/Bandwidth:

2.80 kHz @ -6dB; 3.26 kHz @ -60dB.

### PassBand Tuning (PBT):

<< wider >> >> narrower << << IF shift << >> IF shift >>  
<< low PBT >> low PBT high PBT << high PBT >>

Or drag the push-in edges on the frequency scale. PBT & IF Shift code by W6ar7 WebSDR.

### Waterfall view:

Or zoom with scroll wheel.

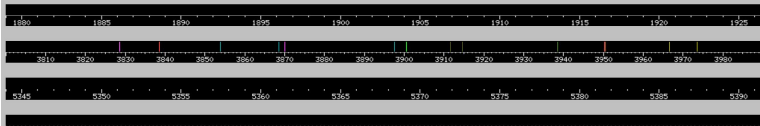
Speed: slow ▼

Size: medium ▼

View: waterfall ▼

☒ Hide labels

The KFS WebSDR is currently being used by 40 user(s) simultaneously: ☒ compact view

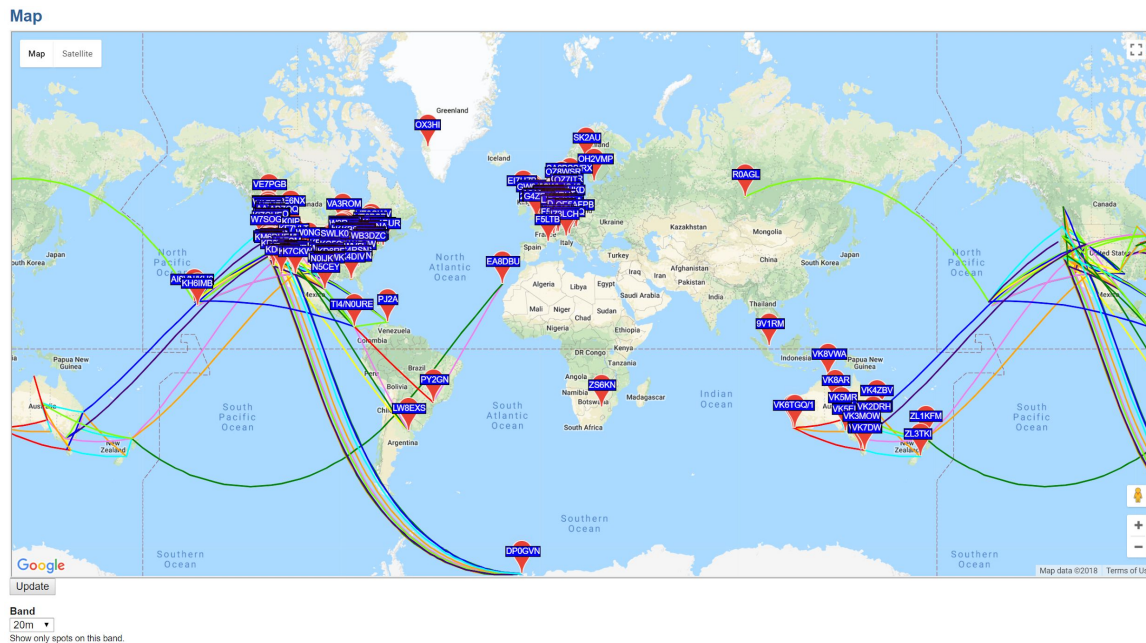


[www.websdr.org](http://www.websdr.org)



# WSPR (Weak Signal Prop Reporting)

<http://wsprnet.org/drupal/wsprnet/map>





# WSPR (Weak Signal Prop Reporting)

<http://www.qrp-labs.com>

## QRP Labs

### QRP Labs Shop

[Click here for Shop!](#)

### News

[February 2018 newsletter](#)  
[2017 archive](#)  
[2016 archive](#)

### Kits

[5W CW transceiver kit](#)  
[Ultimate3/3S QRSS/WSPR kit](#)  
    [Ultimate3S kit info](#)  
    [Ultimate3 kit info](#)  
    [Firmware version history](#)  
    [Modifications](#)  
    [Builders' photos](#)  
    [Builders' videos](#)  
    [Troubleshooting](#)  
    [More technical info](#)  
    [VE3KCL balloons](#)  
[Ultimate relay-switched LPF kit](#)  
[GPS receiver kit QLGI](#)  
[Low Pass Filter](#)  
[Band Pass Filter](#)  
[Si5351A synthesizer](#)  
[OCXO/Si5351A synthesizer](#)  
[Arduino shield](#)

### Ultimate3/3S QRSS/WSPR kits



#### [Ultimate3S kit info](#)

The Ultimate3S QRSS/WSPR kit was launched in 2017. It can transmit a variety of QRSS and WSPR messages.

[Read more...](#)



#### [Ultimate3 kit info](#)

The Ultimate3 QRSS/WSPR kit was produced from 2015 to 2017. It was superseded by the U3S kit. The Si5351A synthesizer was restored with a modification.

[Read more...](#)



#### [Firmware version history](#)

The firmware is the same for the U3 and U3S kits. It also provides the operating manuals for download.

[Read more...](#)





# RBN (Reverse Beacon Network)

REVERSE BEACON NETWORK

[welcome](#)
[main](#)
[dx spots](#)
[nodes](#)
[downloads](#)
[about](#)
[contact us](#)

Check out RBN's blog at: <http://reversebeacon.blogspot.com>, stay tuned!

Check out your signal compared to others, with the "Spots Analysis Tool".  
You can compare signals between up to 10 stations heard by a single reverse beacon on a given date.

[Donate](#)

Map data ©2018 Terms of Use

160m / 80m / 40m / 30m / 20m / 17m / 15m / 12m / 10m / 6m / 2m

world wide / zoom to US / zoom to Europe / zoom to North Atlantic

showhide my last filters

no filter selected, showing all spots

search spot by callsign

rows to show: 15

de	dx	freq	cq/dx	snr	speed	time
KM3T	CM8NMN	7031.8	CW CQ [LoTW]	25 dB	15 wpm	0011z 28 Feb
W1NT-2	CM8NMN	7031.8	CW CQ [LoTW]	22 dB	15 wpm	0011z 28 Feb
W1NT	N8EEN	7056.5	CW CQ	14 dB	19 wpm	0011z 28 Feb
W4AX	CM8NMN	7031.9	CW CQ [LoTW]	15 dB	15 wpm	0011z 28 Feb
KM3T-2	PS7HD	7051.0	CW CQ [LoTW]	15 dB	20 wpm	0011z 28 Feb
KM3T-2	W8OB	3536.5	CW CQ	23 dB	17 wpm	0011z 28 Feb
K3PA	W8OB	3536.5	CW CQ	25 dB	17 wpm	0011z 28 Feb
W3LPL	W8OB	3536.5	CW CQ	15 dB	17 wpm	0011z 28 Feb
WE9V	W8OB	3536.6	CW CQ	30 dB	17 wpm	0011z 28 Feb
K2MFF-3	W8OB	3536.5	CW CQ	17 dB	17 wpm	0011z 28 Feb
KM3T-1	W8OB	3536.5	CW CQ	12 dB	17 wpm	0011z 28 Feb
W3OA	N8EEN	7056.5	CW CQ	19 dB	20 wpm	0011z 28 Feb
W3OA	W8OB	3536.5	CW CQ	12 dB	17 wpm	0011z 28 Feb
PR1T	PS7HD	7050.9	CW CQ [LoTW]	10 dB	20 wpm	0011z 28 Feb

options:

[showhide](#)

news

RBN blog: stay tuned!

we have 161 skimmers online

skimmers online:

3B8CW - 40m, 30m  
3V/KFSEYY - no spot last 15min  
7L4IOU - no spot last 15min  
9A1CIG - 80m, 40m  
9M2CNC - 20m  
9V1RM - 20m, 17m  
AA4VY - 80m, 40m, 30m, 20m  
ADOC - no spot last 15min  
BD2FW - 40m, 20m  
BD4WN - no spot last 15min  
BG4GOV - 20m  
BG7BS - 40m, 20m  
BG8NUJ - 40m, 20m, 15m  
BH4RRG - 40m  
CT1BOH - 60m, 40m  
DS3MMO - no spot last 15min  
DF4XX - 40m  
DJ3AK - no spot last 15min  
DJ9IE - 60m, 40m  
DK0KK - no spot last 15min  
DK0TE - 40m  
DK3UA - no spot last 15min  
DK8NE - no spot last 15min  
DK8RP - 60m, 40m  
DL0WX - 40m  
DL1RNN - 40m  
DL3KR - 80m, 40m  
DL4RCK - 40m  
DL8LAS - 40m  
DL9GTB - no spot last 15min  
DO4DXA - 60m, 40m  
DP5G - no spot last 15min  
E28AC - 40m, 30m  
EASWU - 40m, 30m  
EA6VQ - no spot last 15min  
EC1CT - no spot last 15min  
ET3AA - 40m, 30m, 20m  
FAKJL - no spot last 15min  
F8RRS - 40m  
F8SDO - 40m  
F8IIT - 160m, 40m  
GLLUJ - 80m, 40m, 20m  
G4DPF - no spot last 15min  
G4HSO - 40m  
GW8IZR - 160m, 80m, 60m, 40m  
HA1VHF - 40m, 30m, 6m, 2m

<http://reversebeacon.net>



The map displays the movement of two stations, NOKIA-9 and NOKIA-10, in the St. Louis area. The map includes a sidebar with a search bar, a list of stations, and a track history section. The track history shows the path of NOKIA-9 and NOKIA-10, with NOKIA-9 moving from the west towards the city center and NOKIA-10 moving from the east towards the city center. The map also shows various landmarks, roads, and other stations in the area.

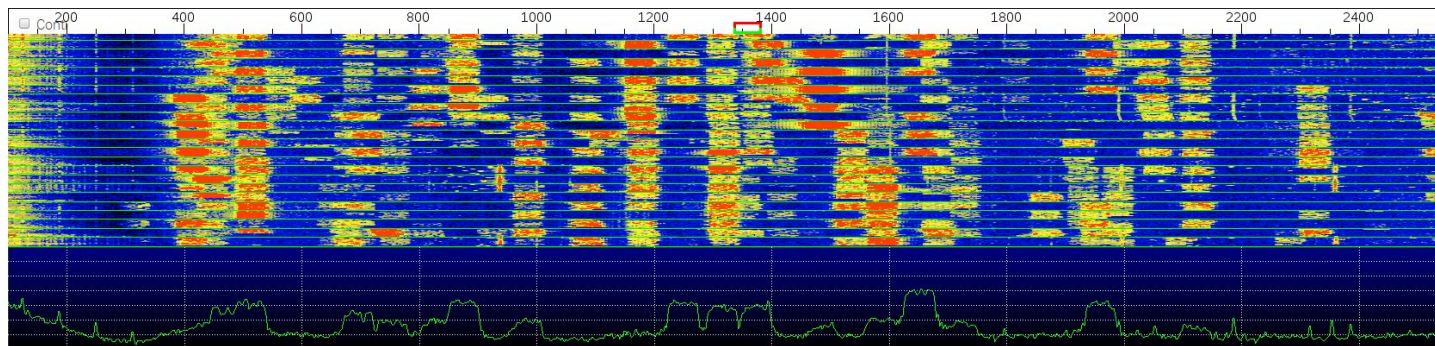




# Digital Modes

Digital (USB is always used)

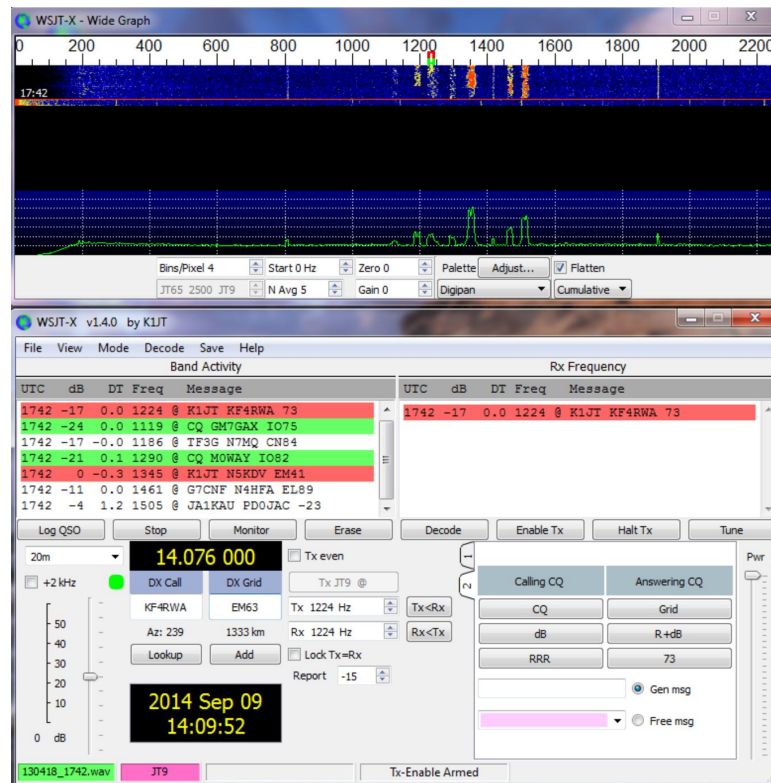
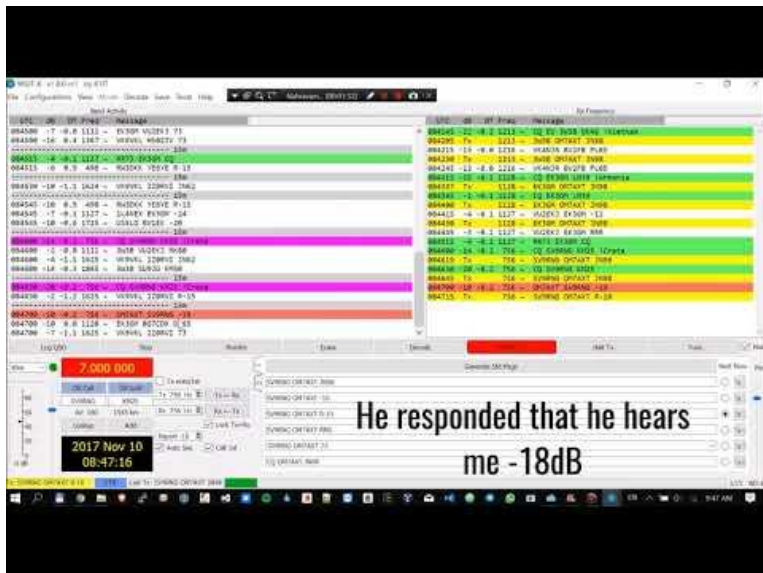
- PSK31
- RTTY
- JT65 & JT9
- FT8





# Digital Modes - FT8/JT65 & JT9

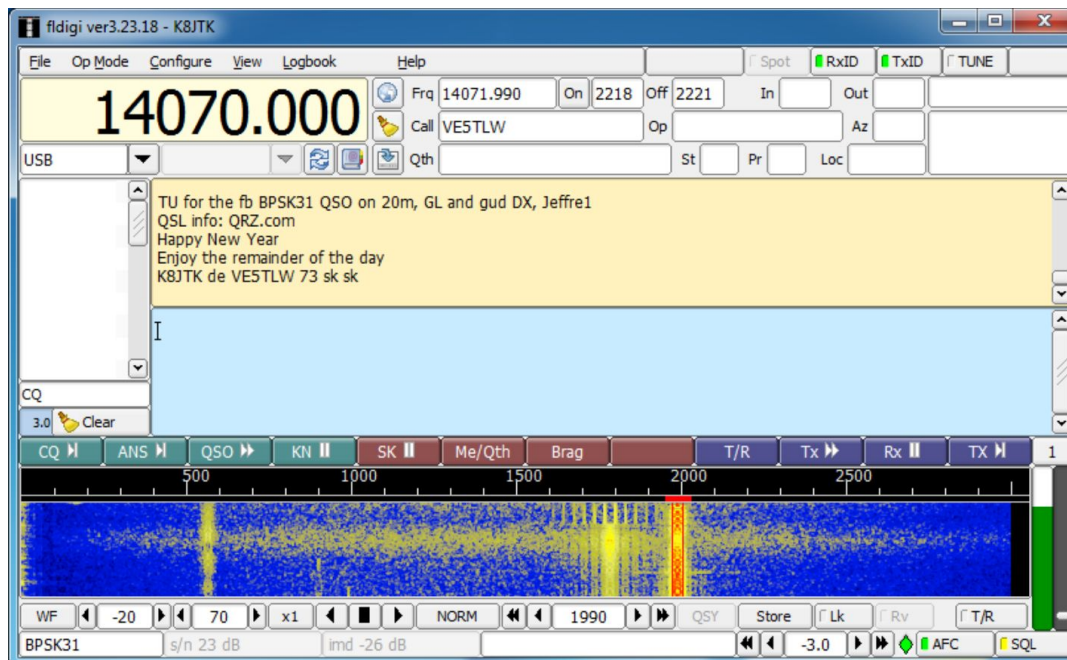
<https://physics.princeton.edu/pulsar/k1jt/wsjttx.html>





# Digital Modes - FLDigi (PSK & RTTY)

<http://sourceforge.net/projects/fldigi/files/>





# Winlink

<http://www.winlink.org>

The screenshot displays the RMS Express 1.3.13.0 - NØRTK application window. The interface includes a menu bar (File, Message, Attachments, Move To, Saved Items, Delete, Open Session, Telnet Winlink, Logs, Help) and a toolbar. On the left, a sidebar shows the 'In Telnet Winlink' section with folders: System Folders (Inbox (0 unread), Read Items (0), Outbox (0), Sent Items (27), Saved Items (0), Deleted Items (0), Drafts (0)), Personal Folders, Global Folders, and Contacts. The main pane shows a message list with one entry: '2018/02 ZNØKT... 4... Sy... SERVICE NØRTK Attention: Program Update Required'. Below the list, the message details are displayed: Message ID: ZNØKTUBMCRK, Date: 2018/02/24 22:26, From: SERVICE, To: NØRTK, Source: SYSTEM, Downloaded from: Telnet:Wien.Winlink.org, Subject: Attention: Program Update Required. The message body contains a notice about disabled features and a request to upgrade the client program, with a link to <https://www.winlink.org/WinlinkExpress>. A 'Telnet Winlink Session' window is open in the foreground, showing a log of the connection process, including the start of the session, the receipt of the message, and the end of the session.

RMS Express 1.3.13.0 - NØRTK

NØRTK - File Message Attachments Move To: Saved Items - Delete Open Session: Telnet Winlink Logs Help

In Telnet Winlink

System Folders

- Inbox (0 unread)
- Read Items (0)
- Outbox (0)
- Sent Items (27)
- Saved Items (0)
- Deleted Items (0)
- Drafts (0)

Personal Folders

Global Folders

Contacts

Date/Time	Message ID	Size	Source	Sender	Recipient	Subject
2018/02	ZNØKT... 4...	Sy...	SERVICE	NØRTK	Attention: Program Update Required	

Message ID: ZNØKTUBMCRK  
Date: 2018/02/24 22:26  
From: SERVICE  
To: NØRTK  
Source: SYSTEM  
Downloaded from: Telnet:Wien.Winlink.org  
Subject: Attention: Program Update Required

Some features available from the CMS have been disabled to avoid triggering issues within the version of your client program currently being used.

Please upgrade to the latest version as soon as possible to restore full functionality.

Visit: <https://www.winlink.org/WinlinkExpress> for download information.

Telnet Winlink Session

Exit Setup Start Stop Time to next Autoconnect = Disabled

\*\*\* Connecting to a CMS...  
[WLNK-S-0-B2FWHMS]  
PG: 53866056  
CMS>  
PW: NØRTK  
[RMS Express-1.3.13.0-B2FHMS]  
PR: 08111100  
- WLNK DE NØRTK (EM48OU)  
FF  
FC EM ZNØKTUBMCRK 452 356 0  
F=49  
FS Y  
\*\*\* Receiving ZNØKTUBMCRK  
\*\*\* ZNØKTUBMCRK - 461365 bytes received  
\*\*\* Bytes: 401, Time: 00:00, bytes/minute: 205491  
FF  
FQ  
\*\*\* --- End of session at 2018/03/02 23:22:14 ---  
\*\*\* Messages sent: 0, Total bytes sent: 0, Time: 00:01, bytes/minute: 0  
\*\*\* Messages Received: 1, Total bytes received: 401, Total session time: 00:01, bytes/minute: 12960  
\*\*\* Disconnected at 2018/03/02 23:22:19



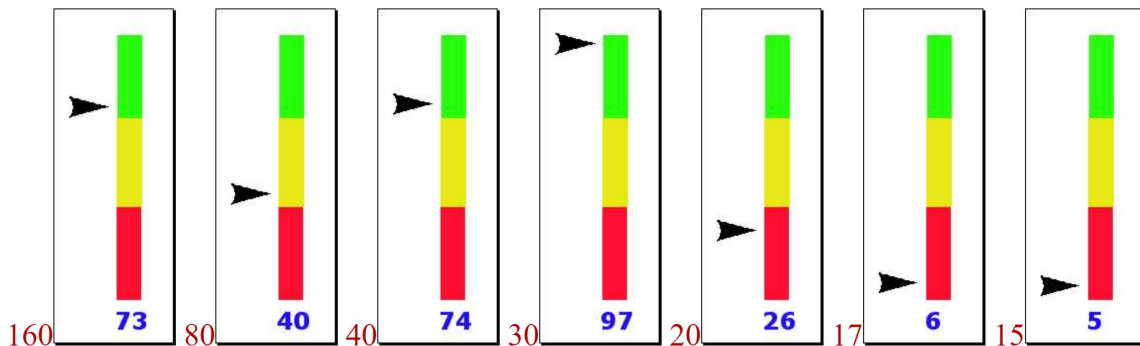
# Propagation Reports

<http://www.hamqsl.com/solar3>

<http://www.bandconditions.com>

## CONUS HF BAND CONDX

3/2/18 --- 23:25:00 GMT --- REPORT # 2810



BAND STABILITY LAST : [10 MINS](#) [HOUR](#) [24 HRS](#)

**Solar Data/Propagation**  
 Click to add to your website  
 Solar-terrestrial Data  
 02 Mar 2018 2318 GMT  
 SFI 66 SN 11  
 A 6 K 1  
 X-Ray 02.7  
 304A 93.8 SEM  
 PF 0 EF 692  
 Aurora 1/nz 1.99  
 Bz -0.9 SW 334.8

HF Conditions		
Band	Day	Night
80m-40m	Fair	Good
30m-20m	Poor	Poor
17m-15m	Poor	Poor
12m-10m	Poor	Poor

VHF Conditions  
 Aur Lat 67.8°  
 Aurora Band Closed  
 8m EsEU Band Closed  
 4m EsEU Band Closed  
 2m EsEU Band Closed  
 2m EsNA Band Closed  
 EME Deg Good  
 Solar Flare Prb 40 %  
 HUF ES - SEASON BREAK  
 HS 8 6 12 18 100  
 Geomagnetic Field VR QUIET  
 Sig Noise Lvl 30-31  
 HUF US Boulder 20,12  
 Current Solar Image

<http://www.ppr19th.com>  
 Copyright Paul L. Harrison 2013





# Propagation Reports

<http://www.voacap.com>

Grayline: 2018-02-28 00 : 24 Set Reset

**Propagation Params**  
Es: No Model: Auto  
SSN: Min.TOA: 0.1 °

**Today's Sunrise/Sunset Times (UTC)**

	Transmitter	Receiver
GND	06:10 18:17	03:02 15:09
D	05:47 18:40	02:39 15:32
F	05:16 19:11	02:08 16:03

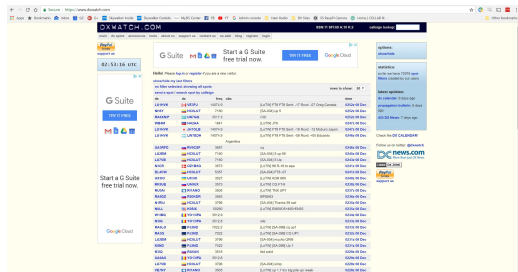
**Transmitter Site**  
QTH: << Select a location >>  
Name: TX Loc calc  
Latitude: 0.0000 [-90..90]  
Longitude: 0.0000 [-180..180]  
TX antenna: 10M: 3-el Yagi @ 15M (50ft) ▼  
12M: 3-el Yagi @ 15M (50ft) ▼  
15M: 3-el Yagi @ 15M (50ft) ▼  
17M: 3-el Yagi @ 15M (50ft) ▼  
20M: 3-el Yagi @ 15M (50ft) ▼  
30M: Dipole @ 10M (33ft) ▼  
40M: Dipole @ 10M (33ft) ▼  
60M: Dipole @ 10M (33ft) ▼  
80M: Dipole @ 10M (33ft) ▼  
TX power: 1500 W ▼  
TX mode: CW ▼  
Specials: Swap TX-RX Short-path ▼  
Current point: Set Home Unset Home

**Receiver Site**  
QTH: << Select a location >>  
Name: RX Loc calc  
Latitude: 0.0000 [-90..90]  
Longitude: 47.0000 [-180..180]  
RX antenna: 10M: 3-el Yagi @ 10M (33ft) ▼  
12M: 3-el Yagi @ 10M (33ft) ▼  
15M: 3-el Yagi @ 10M (33ft) ▼  
17M: 3-el Yagi @ 10M (33ft) ▼  
20M: 3-el Yagi @ 10M (33ft) ▼  
30M: 1/4 wl Vert Gd Gnd ▼  
40M: 1/4 wl Vert Gd Gnd ▼  
60M: 1/4 wl Vert Gd Gnd ▼  
80M: 1/4 wl Vert Gd Gnd ▼  
Noise level: Quiet (153) ▼  
Low-SSN Season Mid-SSN Season Hi-SSN Season

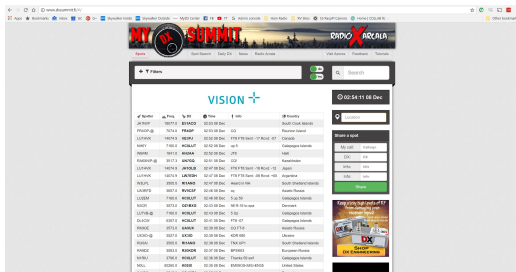
[Use the 24-hour prediction wheel](#) (= REL Short-Path)



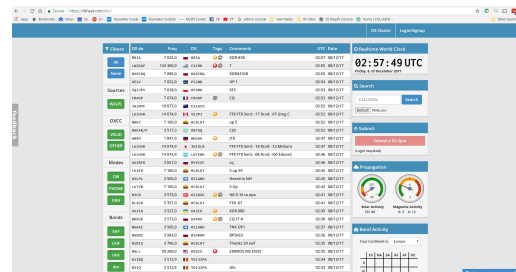
# Clusters



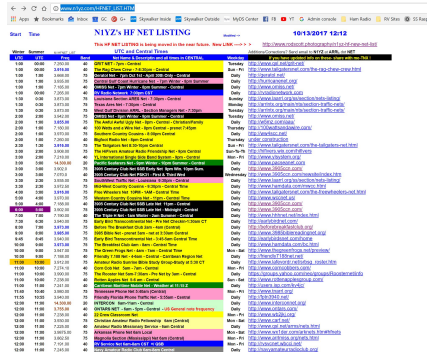
[www.dxwatch.com](http://www.dxwatch.com)



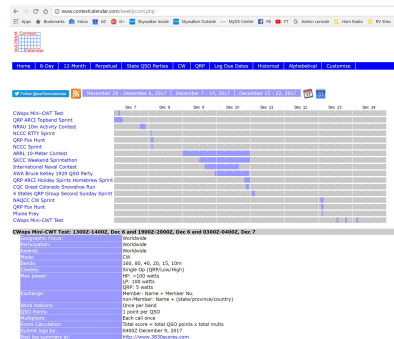
[www.dxsummit.fi](http://www.dxsummit.fi)



[www.dxheat.com](http://www.dxheat.com)



[www.n1yz.com/HFNET\\_LIST.HTM](http://www.n1yz.com/HFNET_LIST.HTM)



[www.contestcalendar.com](http://www.contestcalendar.com)



# Vanity Call Sign Tools

<http://www.ae7q.com>

1x2 & 2x1 callsign availability summary, by callsign region								
Callsign region	Currently available	Pending application	Expired < 2 yr	Canceled < 2 yr	Active		Total	
					Normal	Vanity		
1	0	2	140	44	1590	2306	4082	
2	0	8	218	38	1658	2160	4082	
3	2	10	207	40	1572	2251	4082	
4	0	9	185	39	1438	2411	4082	
5	0	7	200	34	1505	2336	4082	
6	4	7	241	47	1395	2388	4082	
7	0	5	219	47	1409	2402	4082	
8	2	5	254	42	1569	2210	4082	
9	1	1	183	49	1583	2265	4082	
10	0	7	214	38	1626	2197	4082	
11	734	0	14	6	156	130	1040	
12	2	0	13	2	120	97	234	
13	85	1	14	5	222	189	516	
Totals	830	62	2102	431	15843	23342	42610	

<http://wireless.fcc.gov/uls>

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- ▶ Contact Us

**Systems**

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- ▶ Antenna Structure Registration (ASR)
- ▶ TOWAIR



# HF Basics - Band Characteristics

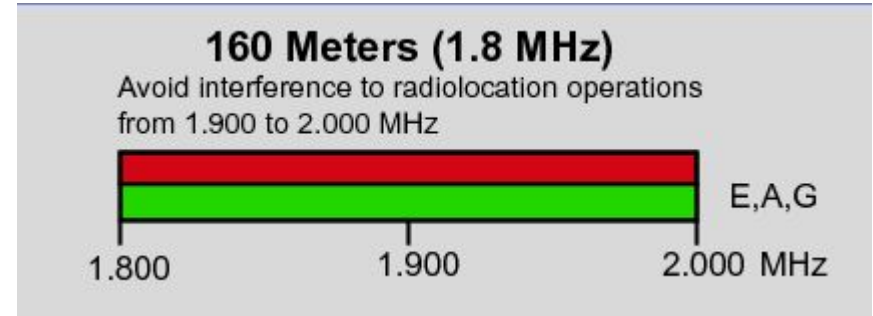
## 160m - Contest Band

Day : local (0 to 300 miles)

Night Summer : local

Night Winter : distant (+1000 miles)

Primarily an evening & night band, with the absence of lightning static crashes & good high antenna, you can talk to stations around the world.





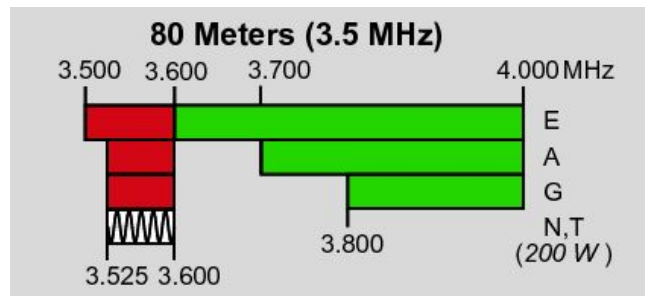
# HF Basics - Band Characteristics

## 75m/80m - Contest Band

Day : local (0 to 300 miles)

Night : local to distant depending on height of antenna

Lots of “local & regional” nets found on this band and “rag chewing” during evening & night hours. Can be noisy during summer months with static crashes. Good for in state QSO party contests or ARES nets because they are local.



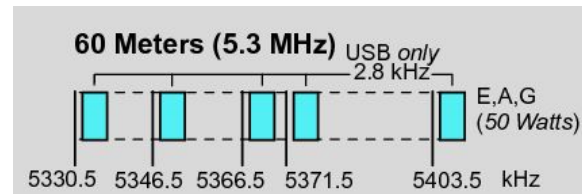


## HF Basics - Band Characteristics

**60m - 100W or less, worldwide band as of 2016,  
typically no contests on this band**

Day : local (0 to 300 miles)

Night : regional to distant (500 to 1000+ miles)



Cluster of 5 specific frequencies that amateur radio shares with the US Govt'. Amateur radio are secondary users.

No contest activity, acts like 80 and 40 meter bands.

Channel 5 (5405.0) is the defacto "DX channel".

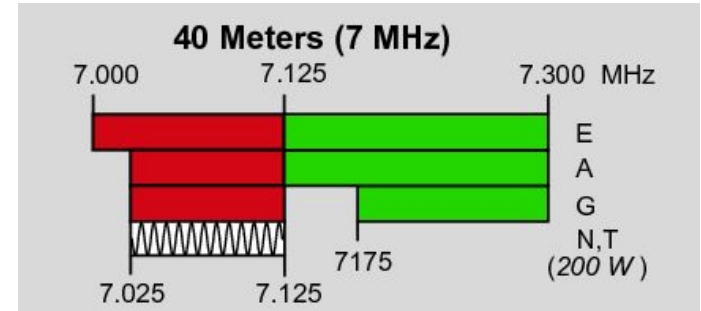


# HF Basics - Band Characteristics

## 40m - Contest Band - **Starter Band**

Day : regional (300 to 500 miles)

Night : distant (1000+ miles)



Depending on height of antenna, this band gets longer (goes further) as evening sets in. NVIS (near vertical incident skywave) as the antenna gets lower to the ground. Good for state QSO parties.

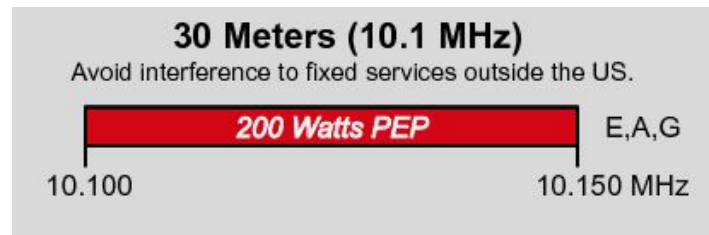


# HF Basics - Band Characteristics

**30m - 200W or less part of the WARC Bands (World Admin Radio Conf), no contests!**

Day : regional (300 to 500 miles)

Night : distant (1000+ miles)



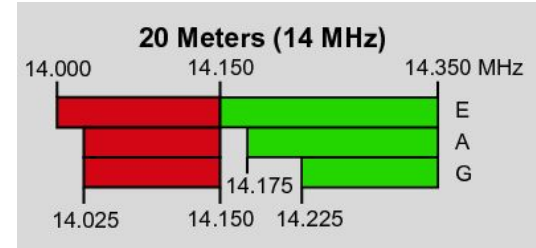
No contest band, acts like 80 and 40 meter bands. Must avoid interference to worldwide stations.





# HF Basics - Band Characteristics

## 20m - Contest Band - **Starter Band**



Day : regional to distant (500 to 1000+ miles)

Night : distant (1000+ miles)

The most popular band in amateur radio. Lots of DX contacts are made on 20m.  $\frac{1}{2}$  wave dipole above the ground is only 32 feet. Easy band to get a lot of contacts.

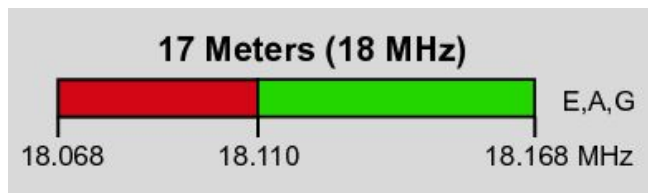


# HF Basics - Band Characteristics

## 17m - Contest Band

Day : regional (300 to 500 miles)

Night : distant (1000+ miles)



Very similar to 20m, very dependent on sunspots.



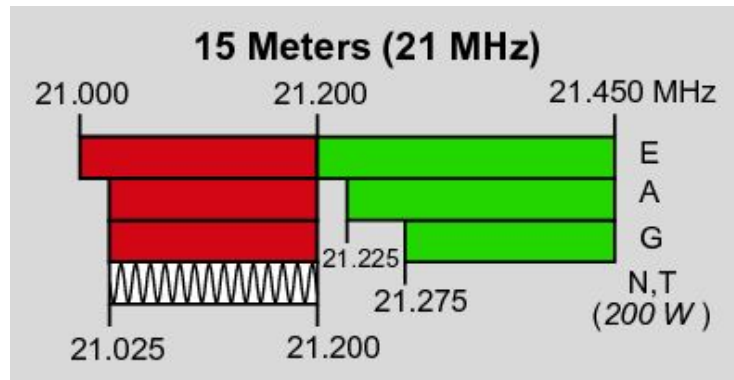
# HF Basics - Band Characteristics

## 15m - Contest Band

Day : regional (300 to 500 miles)

Night : distant (1000+ miles)

Acts like 20m but with less range.





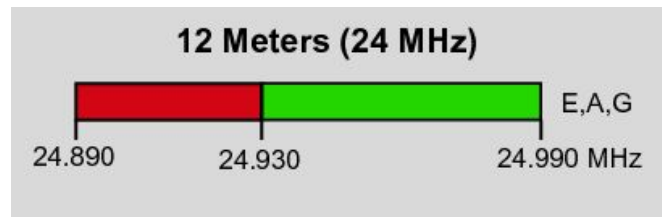
# HF Basics - Band Characteristics

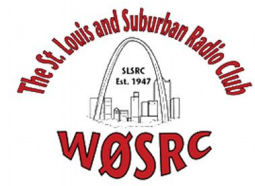
## 12m - WARC Band

Day : regional (300 to 500 miles)

Night : distant (1000+ miles)

No contest band.



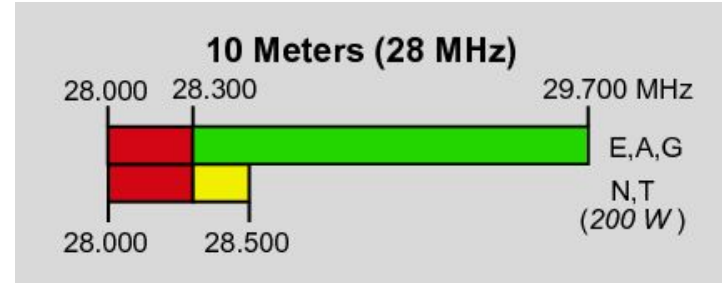


# HF Basics - Band Characteristics

## 10m - Contest Band

Day : regional (300 to 500 miles)

Night : distant (1000+ miles)



Depends on sunspot cycles, active during the summer months.



# Questions!