The Great Collegiate Short Wave Listening Contest

4 June 2020 2230z - 10 June 2020 2100z

Sponsored by the amateur radio clubs of:

Overview

- **Objective:** Earn the most points by listening to radio stations around the world on a shortwave radio

- Thanks to Software Defined Radios like those at **KiwiSDR.com or** http://websdr.org/**, you don't even need to have your own radio to participate**!

- The winner gets a **"ham (radio) and pineapple" pizza** delivered to their house!

World Wide Short Wave Radio Map:
A New World of Entertainment, 1932

Rules

1. Contest Duration: 4 June 2020 2230z - 10 June 2020 2130z (1 Week)

2. You may only listen for a maximum of 3 hours during the contest period (we are all busy people!)

3. Use a single radio receiver for the whole contest. This can either be a receiver you physically have access to, or a remote receiver, such as those available at http://kiwisdr.com/ or http://websdr.org/.

4. You earn 1 point for each station you log. You can log any type of radio station that you can properly identify – ham radio, shortwave broadcast, standards station (e.g. WWV, CHU), etc…

5. For each station heard, use the provided spreadsheet to log:
   UT, Frequency [kHz], Mode, Signal Report, Call Sign, and QTH (huh?)

6. Calculate a final claimed score by multiplying the number of station reports by the number of unique DXCC entities and US States heard.

7. E-mail your final log to Nathaniel.Frissell@Scranton.edu by the end of the contest. The winner will get a "ham (radio) and pineapple" pizza[1] delivered to their house.

8. Final decisions will be made by the contest committee. Contest committee members are not eligible to win the free pizza. (Committee members are W2NAF, NQ6Z, AD8Y, KD8OXT)

[1]Or other suitable and appropriate prize if winner cannot eat ham and pineapple pizza.

KiwiSDRs

- If you don't have your own radio at home, you can use a remote receiver over the internet. Visit http://kiwisdr.com/ and look for "listen live".
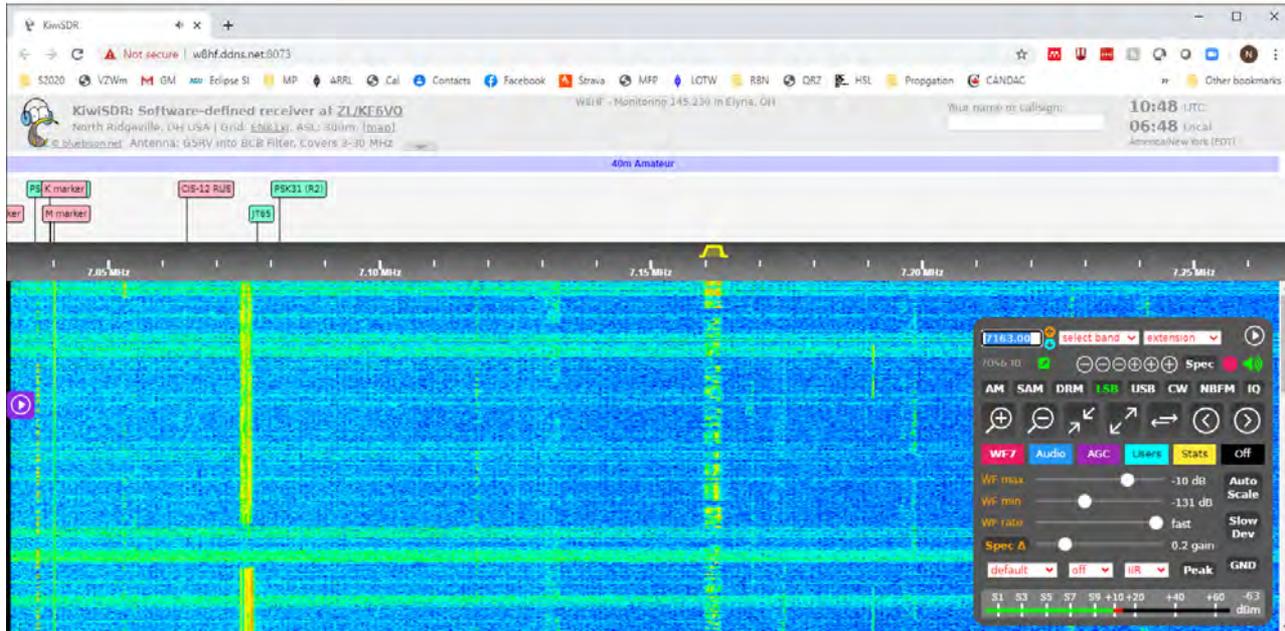
Where to listen… Ham Radio

- If you don't know where to go, try these ham radio bands:

Band Name (Wavelength)	Phone Frequency Range [kHz]	Phone (Voice) Mode
160 m	1800 - 2000	LSB
80 m	3600 - 4000	LSB
40 m	7125 - 7300	LSB
20 m	14150 - 14350	USB
17 m	18110 - 18168	USB
15 m	21000 - 21450	USB
12 m	24930 - 24990	USB
10 m	28300 - 29700	USB

LSB = Lower Side Band
USB = Upper Side Band
Recommended Bandwidth: 3 kHz

Full list of ham radio frequencies available at
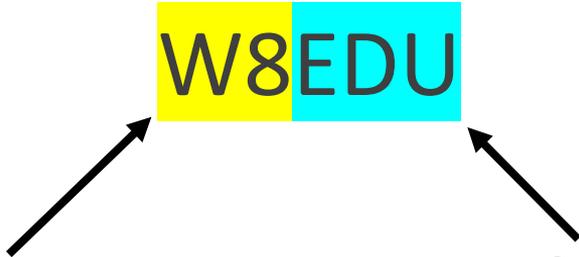http://www.arrl.org/graphical-frequency-allocations

Call Signs

- Ham radio call signs generally have the following format:

W8EDU

Prefix: Tells you the country and sometimes geography within the country

Ham radio "countries" are actually DX Century Club or DXCC entities. You can see the current list here: http://www.arrl.org/files/file/DXCC/2020%20Current_Deleted.txt

Suffix: Does not normally give any special information.

The easiest way to figure out the DXCC entity of a call sign is to search it on qrz.com.

Signal Reports – Ham Radio

- HF ham radio operators use the "RST" System

| Readability (R)	Signal Strength (S)	Tone (T)
1. Unreadable	1. Faint, signals barely perceptible	1. Sixty cycle a.c or less, very rough and broad
2. Barely readable, occasional words distinguishable	2. Very weak signals	2. Very rough a.c., very harsh and broad
3. Readable with considerable difficulty	3. Weak signals	3. Rough a.c. tone, rectified but not filtered
4. Readable with practically no difficulty	4. Fair signals	4. Rough note, some trace of filtering
5. Perfectly readable	5. Fairly good signals	5. Filtered rectified a.c. but strongly ripple-modulated
	6. Good signals	6. Filtered tone, definite trace of ripple modulation
	7. Moderately strong signals	7. Near pure tone, trace of ripple modulation
	8. Strong signals	8. Near perfect tone, slight trace of modulation
	9. Extremely strong signals	9. Perfect tone, no trace of ripple or modulation of any kind

- Tone is only used on CW and Digital, NOT phone.

- A perfect phone report is "59".

Where to listen… AM Shortwave Broadcast

- AM Shortwave Broadcast gives music and news from around the world.

- Use the AM mode on your receiver

Shortwave Band Chart		
BAND	**MEGAHERTZ (MHz)**	**KILOHERTZ (KHz)**
120 m	2.300-2.500 MHz	2300- 2500 KHz
90 m	3.20-3.40 MHz	3200- 3400 KHz
75 m	3.90-4.00 MHz	3900- 4000 KHz
60 m	4.750-5.060 MHz	4750- 5060 KHz
49 m	5.950-6.20 MHz	5950- 6200 KHz
41 m	7.10-7.60 MHz	7100- 7600 KHz
31 m	9.20-9.90 MHz	9500- 9900 KHz
25 m	11.600-12.200 MHz	11600-12100 KHz
22 m	13.570-13.870 MHz	13570-13870 KHz
19 m	15.10-15.80 MHz	15100-15800 KHz
16 m	17.480-17.90 MHz	17480-17900 KHz
13 m	21.450-21.850 MHz	21450-21850 KHz
11 m	25.60-26.10 MHz	25600-26100 KHz

Where to listen... AM Shortwave Broadcast
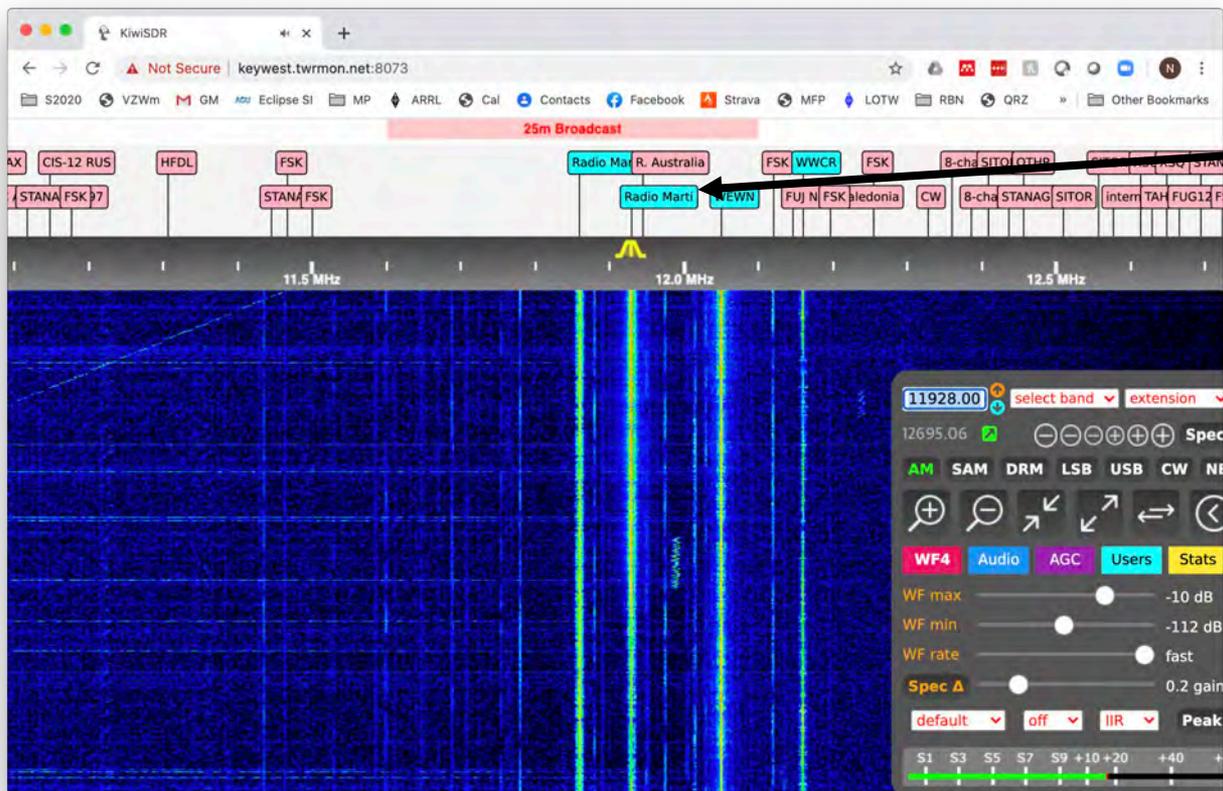
- KiwiSDR has a guidebar to identify shortwave broadcast bands and stations.

- Recommended Bandwidth: 6 to 9 kHz

Signal Reports – AM Broadcast

- AM SWL reports should use the SINPO format.

What is SINPO/SIO? (Shortwave radio)

The SINPO code is a way of quantifying reception conditions in a five-digit code, especially for use in reception reports to broadcasters. The code covers Signal strength, Interference (from other stations), Noise (from atmospheric conditions), Propagation disturbance (or Fading, in the SINFO code), and Overall. The code is as follows:

(S)ignal	(I)nterference	(N)oise	(P)ropagation	(O)verall
5 excellent	5 none	5 none	5 none	5 excellent
4 good	4 slight	4 slight	4 slight	4 good
3 fair	3 moderate	3 moderate	3 moderate	3 fair
2 poor	2 severe	2 severe	2 severe	2 poor
1 barely aud.	1 extreme	1 extreme	1 extreme	1 unusable

http://www.topdx-radioclub.com/contact.html

Universal Time (UTC)

- Ham radio operators, SWLers, and scientists use a single time zone.

- You may see it referred to by many names:
  - UT – Universal Time
  - UTC – Coordinated Universal Time (the French reverse the order…)
  - GMT – Greenwich Mean Time
  - Zulu (z)

- UT is always given in 24-hour format.

- Eastern Daylight Time (EDT) is 4 hours behind UT.

- Get current UT time by listening to WWV/WWVH or from https://www.timeanddate.com/worldclock/timezone/utc

Sample Log

Propagation Types

- Ground Wave
  - ◦ Radio signal travels along the surface of the Earth
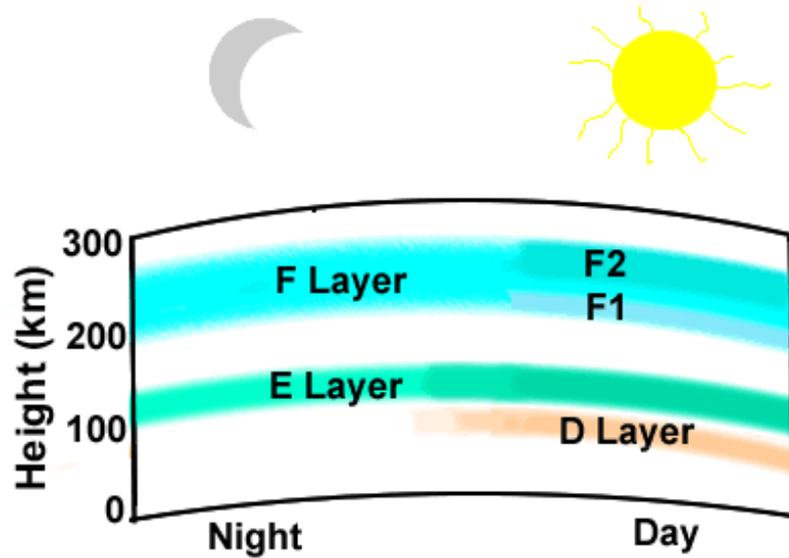 - ◦ Mostly radio frequencies < ~ 2 MHz

- **Sky Wave/Skip**
  - ◦ Radio signals are refracted back to Earth by the ionosphere
  - ◦ Mostly 3 < f < 30 MHz (HF, High Frequency)

- Line-of-Sight
  - ◦ Radio signal travels in a straight line
  - ◦ "If you can see it, you can talk to it…"
  - ◦ f > 30 MHz (VHF, UHF, and above…)

Ionospheric Skip Propagation

https://commons.wikimedia.org/wiki/File:IonosphereLayers-NPS.gif