

Volume 16  
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MARC/YRC Newsletter  
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## Upcoming Events:

YRC board meeting 8/3 7:00 pm **Cancelled**  
YRC class/testing September 12/19 9:00 am  
Picnic August 8<sup>th</sup> 10 am

## MARC Meeting

Keith K7KAR, Chuck AB7ABJ, Elisabeth KI7NVQ,  
Mark KB7EPC, Tucker KD7FOX, Tony AE7JV,  
Vivian KF6GZK, Bob KC7ATP, Jon KJ7POE, Scott  
Poe, Mark WA7CWA, Delia Richlen.

Show and tell was a Microsat WX3in1 APRS  
digipeater with some explanation of what it does. We  
had a review of Field Day with the YRC and a  
discussion of the upcoming picnic.

### August YRC Tech Talk: Introduction to WSPR

Do you think that the WSPR Net Database is a dating  
app? Or that Forward Error Correction is something  
your spouse does to you before you visit their  
relatives? If you do, then you definitely need to come  
to the August YRC meeting and hear Gary  
Waddingham (KC7AX) talk about WSPR (Weak  
Signal Propagation Reporter).. Learn how hams use a  
digital algorithm and very low power transmitters to  
get information on real time propagation. Marvel at  
how 200mw on a HF frequency can be heard  
thousands of miles away!

### [MARC Website](#)

### [YRC Website](#)

| Frequency   | Tone  | Repeater | Shift | Location   |
|-------------|-------|----------|-------|------------|
| 446.600 (*) | 100hz | simplex  |       | Majerus Rd |
| 147.360 (*) | 100hz | + 600kHz |       | Red Lodge  |
| 446.700(*)  | 100hz | - 5MHz   |       | Red Lodge  |
| 447.500     | 100hz | - 5MHz   |       | Red Lodge  |
| 448.500     | 100hz | - 5MHz   |       | Majerus Rd |

(\*) Linked repeaters providing wide area coverage.

**MARC Annual Picnic replaces the monthly  
meeting 8/8 10:00 am 48 W Sunshine Rd,  
Roundup.**

**YRC regular meeting 8/17 at 7pm. United  
Way of Yellowstone Building, 2173  
Overland Ave, Billings.**

**CMARC no club meeting in July and  
August.**

## Signal Strength Reports

RST 599 is understood by most hams, but what is -21  
dB? That is a report you might see on FT-8 or WSPR.  
It represents a signal-to-noise ratio (SNR).

Just like the name says, SNR is calculated as the ratio  
of the signal level to the ambient noise level. It is  
expressed in decibels so that graphs look a little better,  
but you don't really have to worry about that part.

Just remember that at 0 dB the signal level is the same  
as the noise level. Negative numbers mean the signal  
is less than the noise and positive numbers mean the  
signal is more than the noise.

You can also remember that a 3 dB increase means  
twice the power. And that S-meter on your receiver –  
well, each S unit corresponds to 6 dB so S9 is 4 times  
as loud as S8 (double then double again)!

### Local Nets:

M– F 0800 145.410/147.360.  
Tuesday 7:00pm 145.410/147.360,  
Wednesday/YL 6:30pm 145.410/147.360  
Wednesday/Tech 7:00pm 147.000  
Saturday 10:00am 145.410/147.360

## Maidenhead Locator System.

With digital modes such as FT-8 becoming more and more popular it might be useful to re-look at what it means when someone gives you their grid square. It is a standard part of the exchange in an FT-8 contact.

When someone asks for your grid square can you give the correct answer? On the HF bands many hams try to get Worked All States awards. There are many similar awards in countries with a geographical equivalent to States. These awards are really tough to achieve on the VHF bands as propagation doesn't normally allow for long distance contacts. Actually, nearly 250 hams have worked all states on 2 meters and 26 have done it on 23 cm! Think moonbounce.

In the 1980s several avid VHF groups got together to come up with a more orderly way of identifying approximate locations than the somewhat arbitrary boundaries of states and counties, etc. The result was the Maidenhead Locator System which became formalized in the late 1990s. This system divides the world into roughly equal sized regions based on your longitude and latitude.

You can find your grid square using one of many online calculators. Here are two that will give you the answer based on your address, callsign or longitude and latitude.

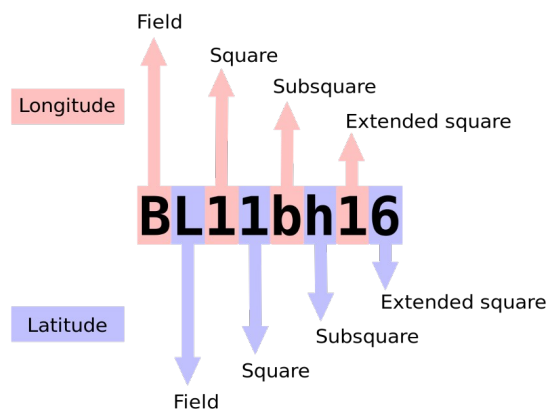
[Grid Square by Longitude/Latitude](#) (Long/Lat)  
[Grid square by callsign or address](#) (Call or Address)

The scheme uses the latitudinal and longitudinal lines to break the globe into 324 “Fields” by marking every 20 degrees. The 18 lines (18=360/20) are given letter designations A-R. So your location Field would be designated by two letters (the Field “DN” covers most of our area). The starting point for latitude is the South Pole while the starting point for longitude is near Fiji (the anti-meridian of Greenwich, England).

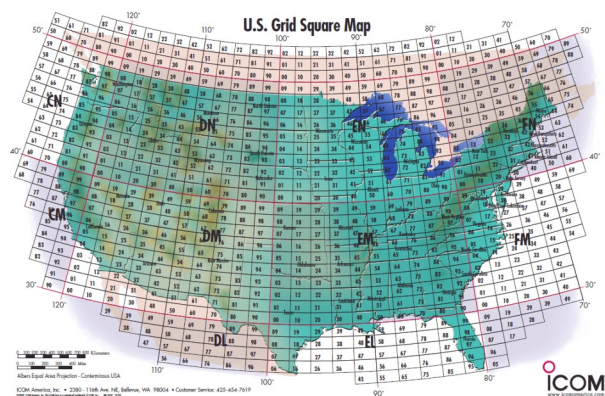
Within each Field every 10<sup>th</sup> line is chosen breaking the Field into 100 “Squares”. Your grid square is identified by one of these Squares. The 10 lines are given a number designation 0-9. So your Square might be “DN56” or “DN55”.

The system continues to smaller regions that may be used. Subsquares for each Square use 24 lines designated by letters A-X. The Subsquares each

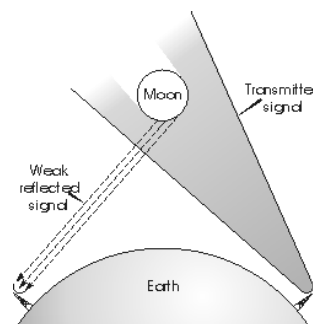
represent a region of 2.5’ of latitude by 5’ of longitude. The system then moves back to using 10 lines with number designations for “Extended Squares”. There isn’t a formal description for further subdivisions, but informal groups do repeat the pattern. The chart below shows how the designations are formed.



VHF DXers latched onto this as a great piece of information to pass in short contacts via methods such as meteor scatter, moonbounce and even satellite. As some of the modern digital schemes came along such as FT8 this became a standard part of QSOs. It migrated to the HF bands with the growing popularity of FT8.



This map shows the Grid Squares for the US.





## News from the Yellowstone Radio Club

The Big News is John McCabe K7IKC has accepted the Boards invitation to become President of the Yellowstone Radio Club. John did a great job during his earlier Presidency, more good things to come for sure.

Jim Halfpenny K9YNP has spent a great deal of time the last few years locating and putting together a list of YRC owned equipment. Turns out there is a great deal of it being stored in a wide variety of locations. YRC President, John McCabe, has offered his large shop as a storage and sorting area. The plan is to gather all the equipment and then go through it to see what the YRC and YARES can use and what can be sold or given away.

Program Director Chuck Wittnam KD7MT is continuing his series of very informative and interesting presentations. These are made at the beginning of the Regular Meeting before the reports and business discussions. Gary Waddingham KC7AX will be making the August meeting presentation, subject will be WSPR.

Repeater News. From Gary Waddingham KC7AX Repeater Manager: Thanks to Joe, KM7AXV, and Jeremy, KJ7IAZ, for installing shelving at the repeater site on Red Lodge Mountain. That includes the 147.36, the 447.5, the 224.66 and the 462.60 GMRS. This was a Herculean task. It took longer than any other project in the 6.5 years I've been Repeater Manager.

## Some pictures from the Glacier-Waterton Hamfest

