



# THE MESSENGER



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## BOXBORO – WORTH IT OR NOT?

The Boxboro, MA Amateur Radio Convention is on September 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> this year. Hopefully you will get this publication prior to the event!

I consider myself a “casual” Ham. While I certainly enjoy the hobby within the limitations of my condo existence, I am certainly not an obsessive ham. That being said, I DO have my Extra Class license and a nice ICOM IC-7300, a Kenwood TM-V71 I use as a base station (I am not into mobile operations) and a Yaesu FT-60 handheld (no brand loyalty here!)

Getting back to Boxboro – I have been to the last 2 versions during the Saturday sessions. Here are my take aways:

- 1) The outdoor flea market is certainly worth a look but I have yet to find much worth my few dollars. The most interesting aspect for me are the electronic parts dealers. Having a physical look at things like connectors and other piece parts rather than ordering online is certainly the best way to go.
- 2) The inside vendor tables are certainly worth some time. Not all the major manufacturers are represented but those that are can provide some insight into which way the hardware and software are going. The vendor reps are often very knowledgeable and helpful

and not at all pushy. It is also a good place to get the latest HRO catalog. ARRL certainly has a booth and usually

provides a small gift like a recent publication or two for early renewals.

- 3) For me the most interesting aspect of Boxboro is the various forums. Think of it as our Consorti-

um but much expanded with some advanced topics. Talks on the science of propagation, QRP, and kit building are always well done and worth your time.

That being said, and finding out that native Rhode Islander’s often feel the need to pack an overnight bag for travel more than 20 miles from home - I will say – yes – Boxboro is worth it and can be both fun and informative. Oh yeah, stick with the outdoor food vendors and there is a decent pizza shop just down the road. Al Meyer KD2HDP



## NAIQ’S WORKBENCH—JT65HF AND WOLPHI-LINK

At Field Day this year, we had a CW/Digital station in my trailer. We had the Yaesu FT-857D, the Yaesu ATAS-120A screwdriver antenna, the Lenovo Laptop and a West Mountain Radio Plug and Play USB adapter to interface the two. After several hours and help from Cassie, Jim

K1GND, and Mike N1BEE, we got it running around 8PM Saturday. And we did make some contacts on JT65.

Just prior to Field Day I discovered on the internet, a device called the Wolphi-Link interface. it is a plug and play adapter de-

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signed for the Yaesu FT-817/857/897 radios to connect with an Android Tablet or Smartphone. I ordered one, tried it, couldn't get it to work properly, so I fell back onto the West Mountain Radio unit and the laptop.

Now as we have seen, laptops are getting thinner, and also losing stuff we use as Hams, like a serial port, separate microphone and headphone jacks, CD/DVDROM, etc. The new Lenovo I bought came with 2 USB ports, 1 2.0 and 1 3.0, a HDMI output, Ethernet connection, and a 1/8" 4 conductor jack for both audio input and output. For Field Day I had to use a USB Soundcard Interface to get the audio from the laptop to the USB Plug and Play.

So after Field Day, I decided to set up the Yaesu FT-897D, and looked at the Wolphi-Link again. Knowing that the JT56-Android app works on my phone without interface, and the phone has the required 4 conductor plug, and it would work receiving JT65 through the Wolphi-Link, maybe there's a way to hook up the laptop to the FT-897D.

Now something to know about the Yaesu FT-8x7 radios, they have a digital VOX, which means you do not have to have the CAT cable to trigger the PTT. You do have to adjust the menus accordingly after selecting digital mode and in the menu selecting User-U for the digital mode. Also a menu adjustment for the digital VOX delay, and digital signal output, plus drop the power down to 25 watts. High power is NOT needed!!!

So now I have the radio set up, hooked the 6-pin cable to the DATA port on the FT-897D, connected the other end to the Wolphi-Link

interface, plugged in the 4 conductor into the interface and then into the laptop. Firing up the JT65-HF software I had to make some menu adjustments. First, the software is looking for a COM port for the PTT, in the case of the Wolphi-Link, there is none. Second you need to adjust the audio levels both on the microphone input and the audio output. There is 2 ways of audio adjustments, first is adjust the audio level for both the microphone and headphone output on the computer via the soundcard settings. Second gets a little more complicated. The Wolphi-Link has 2 potentiometers, 1 for input and one for output. These are normally set from the manufacturer, but some folks have reported having to adjust the potentiometers for better audio in and out from the radio.

Now with all the adjustments, last thing is getting the timing right. At Field Day I set the FT-857D to 10.000 MHz USB and listened for WWV in Fort Collins, and manually set the time on the laptop settings for the correct time, and when the beep struck, hit the OK button on the screen. At home I double check my computer time against WW, but I also know that my wifi is very accurate for this type of work. Why the critical timing? Reason for this is on JT65 you have transmissions on odd and even minutes. Transmitting on the odd minute, it transmits for 45 to 47 seconds, then at the top of the minute switches to listening on the even minute for the 45 to 47 second transmission and at the end of transmission takes 2 to 3 seconds to translate the tones and put the data up on the screen. Same thing if you are transmitting on the even minute, transmits on the even and listens on the



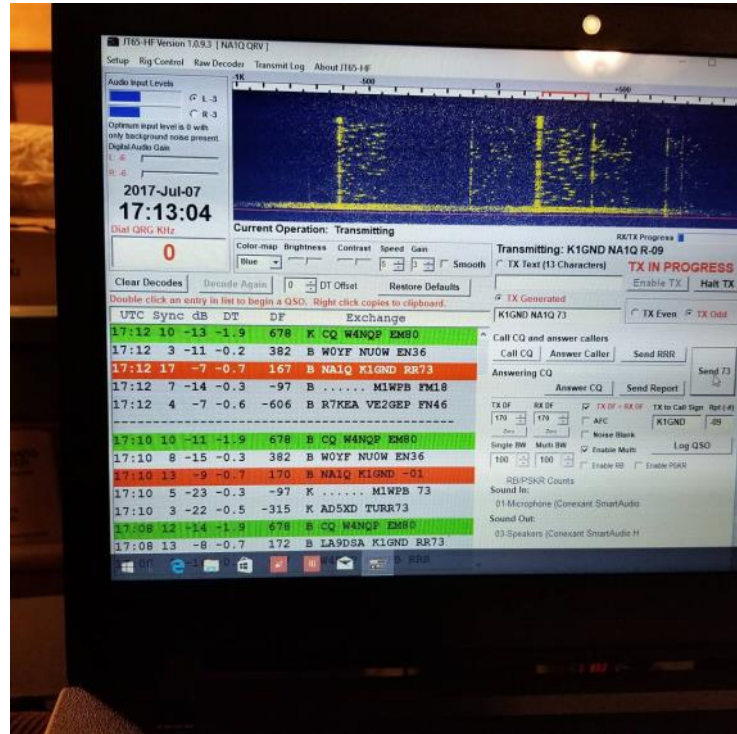
odd minute.

On Monday July 7, 2017 at approximately 17:10 UTC (1:10PM EDT) I had a nice JT65 contact with Jim K1GND, and I was testing the Wolphi-Link with the Yaesu FT-897D we used for the GOTA station at Field Day. I also worked a couple more stations during that brief test while at home before work.

Now one more thing about the Wolphi-Link. You can buy it online from their site, [www.wolphi.com](http://www.wolphi.com) for \$39.99, not including the patch cables for the radio or laptop/tablet/smartphone. The cables run between \$7.99 to \$8.99 each depending on length and plug end. Shipping was around \$3.50. Now with that said, the West Mountain Radio RigBlaster Plug and Play costs about \$120 plus extra cables and USB soundcard, ending up at close to \$150 before shipping. Size wise, the single cord Wolphi-Link is perfect for a streamlined setup. Downfall is you do not have CAT control from the laptop to the radio like you do with the RigBlaster, so you still have to be hands on the radio to tune the frequency for the digital mode you are working.

As of the beginning of this month I have started to dabble with FT8, the latest digital mode by Joe Taylor K1JT and Steve Franke K9AN.

So that's it from my bench right now, more to come. 73 Matt NA1Q



## FROM THE PRESIDENT

I hate to start this article on a downward note, but unfortunately I have to. Steve Hodell KA1RCI has passed away today, August 19th, 2017. He was very well known in the amateur radio community and was instrumental in creating the current repeater hub we have in Rhode Island. He was the Assistant Section Manager for RI, and a member of the club. My condolences go out to his family and friends, he will be missed.

Hopefully everyone has had a fun and great summer. We had a great time at Field Day this year, the bands semi-cooperated with us, especially when 15 meters opened up Sunday at around 1PM. It was great to see everyone from the club having fun. The food was good,

the camaraderie of members and guests all three days was something to be remembered. I do wish to thank everyone for helping make Field Day 2017 great. By the way I am keeping a notebook specifically for Field Day with notes in it so that in the future we have information to reference, like not parking the club trailer below the covered spring in the field, remembering extra rope for the antennas, tuning the 6m beam before putting it up, and other silly little things. This has been added to the BVARC President's briefcase, along with all the other important things the club president needs.

We also had the BVARC Summer Dinner at the Village Haven July 23rd. Thanks to Vice

President Jonathan WW2JS for doing all the arraignments and making that a rather fun time for the 24 folks who attended.

August 21st at 2:45pm EDT was the peak of the Solar Eclipse, I got some cool pictures using a #14 welders shade and my cellphone camera.

And a huge thanks to Bob W1YRC for running the weekly Wednesday Night Net on 146.565 MHz FM. I need to try and get a huge 2 meter beam antenna up at work in Shrewsbury to make the net sometime.

And we had another successful VE Session August 26th, my daughter Cassie who attended Field Day took a shot at the technician class exam. (As of this writing, the exam hasn't happened yet....it's next week)

Now for this fall and winter. First is Boxborough, September 8, 9, and 10. It is the neatest little ARRL convention here in New England. You can hit the ham fest Saturday and Sunday, play with some new equipment at the Manufacturer's booths, and socialize with your fellow Hams. Also from Friday through Sunday they have different discussions and seminars in various rooms in the Hotel.

On Monday September 11th, is the Consortium. I will say this, (Sorry Bob W1YRC for giving a hint), this consortium will be historical and going to the next level. So plan on attending if you can. That is all I'm saying for now on that.

Monday September 25th we will be resuming our monthly club meetings, last Monday of the month from September to November then

January to April. Next month's May and June meetings will be on the 3rd Monday of the month due to Memorial Day and Field Day. So I'll see everyone at the Slatersville Congregational Church, 25 Green St, Slatersville, RI at 7:30PM for the club meetings.

Also I am planning on participating in the RaDAR Challenge for 4 hours sometime between 00:00 UTC to 23:59 UTC November 4th 2017. What is the RaDAR Challenge you ask? RaDAR stands for Rapid Deployment Amateur Radio. The rules can be found at [www.sarl.org.za/Web3/Members/DoDocDownload.aspx?X=20161222085537waqSliCvbT.PDF](http://www.sarl.org.za/Web3/Members/DoDocDownload.aspx?X=20161222085537waqSliCvbT.PDF) about halfway through the rulebook. It will also be available on the [www.w1ddd.org](http://www.w1ddd.org) website. Neat part of this contest is you can only operate for a single 4 hour period, including setup, takedown, and moving locations for portable operation, while working other RaDAR stations. Unlike Field Day, it is like a sprint, but allows for flexibility as to you choose when in the 24 hours to operate your 4 hour operating window.

On December 2nd we will have our annual Christmas Party at the Pines Restaurant, starting at 6pm and going until? Tickets will be available starting at the October meeting, more on the party to follow.

So have fun this fall, see you at the meetings, and remember this is our club, if there is anything you would like to have the club do as an event, let the officers know, and we can see what we as a club can do. 73 Matt NA1Q

SO HAVE FUN  
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## BVARC CONSORTIUM SCHEDULE

Monday, September 11, 2017, 5:00 PM  
Monday, October 2, 2017, 5:00 PM  
Monday, November 6, 2017, 5:00 PM  
Monday, December 4, 2017, 5:00 PM  
Monday, January 8, 2018, 5:00 PM

Monday, February 5, 2018, 5:00 PM  
Monday, March 5, 2018, 5:00 PM  
Monday, April 2, 2018, 5:00 PM  
Monday, May 7, 2018, 5:00 PM  
Monday, June 4, 2018, 5:00 PM

## WHAT ARE SUBSQUARES AND EXTENDED GRID SQUARES?

OK we all know what a Grid Square is. Back in 1980 this system was adopted, compressing latitude and longitude into a short string of characters used in radio communications used to give limited precision while limiting the amounts of characters needed for it's transmission. A grid square is a 1 degree latitude by 2 degree longitude square used to identify our location in contests and QSOs on the radio. But a 1x2 degree grid square is approximately 70 x 100 miles or approximately 7000 square miles. Kind of large spot to say where your station is. The system utilizes a system of 2 letters followed by 2 numbers. Example FN42

So they broke a grid Square down into a subsquare measuring 2 1/2 minutes latitude by 5 minutes longitude, or roughly 3 x 4 miles approximately 12 square miles. Getting a bit more precise, but anything can be in 12 square miles. So now we have 2 more letters added making our grid location 6 characters. Example FN42fa

Now lets talk portable operating. Some operators want to be very precise in their location to see how far they actually worked. So they took the subsquare and broke it into 100 extended squares. These extended squares break down into 15 seconds by 30 seconds and are

approximately 3/10 x 4/10 of a mile or 1/8 of a square mile (about the size of a typical neighborhood). Now we've added another 2 numbers to have 8 characters. Example FN42fa85

Now we're getting really, really small in our location as far as pinpointing where we are. But we can break the extended grid square down even further, 5/8 second by 1 1/4 seconds and are approximately 66 x 88 feet or 5808 square feet (about the size of a large house). Now we add another 2 letter set, FN42fa85kl.

Hopefully this helps when you hear someone giving their location with 8 or 10 characters.

Also Les Peters N1SV has written a paper on how to calculate out your 8 digit grid square location based on Latitude and Longitude. There is also an app, called HAM GPS available on the Google Play store that converts latitude and longitude to Maidenhead grid location out to 10 characters. And the SARL has a grid square calculator to convert latitude and longitude to Maidenhead grid squares from 4 to 10 characters. Their site is at [http://www.sarl.org.za/public/QRA/Abt\\_Locators.asp](http://www.sarl.org.za/public/QRA/Abt_Locators.asp) 73 Matt NA1Q

## HOW TO CALCULATE YOUR 8-DIGIT GRID SQUARE

The Maidenhead Locator System is a method for identifying positions on the Earth and commonly used by VHF/UHF enthusiasts. A maidenhead locator represents a position on the Earth based on latitude and longitude. This position information is represented in a limited level of precision in order to limit the amount of characters needed for its transmission. Pairs of characters alternate between letters and numbers that indicate a zone or sub-zone. While it is common to represent a location using the first two or three pair's additional accuracy can be gained by including the fourth pair.

### FIRST PAIR (AA-RR)

The world is divided into (18) 20 degree longitudinal by (18) 10 degree latitudinal zones commonly known as fields. In order to avoid negative numbers the system also specifies that the latitude is measured from the South Pole to the North Pole and longitude is measured eastward from the antemeridian of Greenwich, giving the Prime Meridian a false easting of 180 degrees and the equator a false northing of 90 degrees. The first character encodes the longitude and the second encodes the latitude with letters "A" thru "R" (refer to example 1 below).

### Example 1:





Longitude = -71.661962 degrees  
 = (-72.661962) + 180  
 = (108.338038)  
 = 108.338038/20  
 = 5 remainder 8.338038  
 = F (location in 6th zone)

Latitude = 42.664048 degrees  
 = 42.664048 + 90  
 = 132.664048  
 = 132.664048/10  
 = 13 remainder 2.664048  
 = N (location in 14th zone)

### SECOND PAIR (00-99)

Each field can be further divided into (10) 2 degree longitudinal by (10) 1 degree latitudinal zones commonly known as squares. The first character encodes the longitude and the second encodes the latitude with numbers "0" thru "9" (refer to example 2 below).

#### Examples 2:

Longitude = 8.338038 {refer to example 1}  
 = 8.338038/2  
 = 4 remainder 0.338038  
 = 4 (location in 5th zone)

Latitude = 2.664048 {refer to example 1}  
 = 2.664048/1  
 = 2 remainder 0.664048  
 = 2 (location in 3rd zone)

### THIRD PAIR (aa-xx)

Each field can be further divided into (24) 5 minutes (0.083333 degrees) longitudinal by (24) 2.5 minute (0.0416665 degrees) latitudinal zones. The first character encodes the longitude and the second encodes the latitude with letters "a" thru "x" (refer to example 3 below).

#### Example 3:

Longitude = 0.338038 {Refer to example 2}  
 = 0.338038/0.083333  
 = 4 remainder 0.004706  
 = e (location in 5th zone)

Latitude = 0.664048  
 = 0.664048/0.0416665  
 = 15 remainder 0.0390505

= p (location in 16th zone)

### FOURTH PAIR (00-99)

Each field can be further subdivided into (10) 30 seconds (0.008333 degrees) longitudinal by (10) 15 seconds (0.004166) latitudinal zones. The first character encodes the longitude and the second encodes the latitude with numbers "0" thru "9" (refer to example 4 below).

#### Example 4:

Longitude = 0.004706 {Refer to example 3}  
 = 0.004706 / 0.008333  
 = 0 remainder 0.004706  
 = 0 (location in 1st zone)

Latitude = 0.0390505 {Refer to example 3}  
 = 0.0390505/0.004166  
 = 9 remainder 0.001556  
 = 9 (location in 10th zone)

There are a number of online sources for tools to calculate a 4/6 digit grid square from a Latitude / Longitude or vice versa, listed below are several popular ones.

#### Online sources for Maidenhead Grid Square Calculators:

[http://home.comcast.net/~lespeters/PROJECTS/Calculate\\_8-digit\\_Grid.zip](http://home.comcast.net/~lespeters/PROJECTS/Calculate_8-digit_Grid.zip)

<http://www.amsat.org/amsat/toys/>

<http://www.dxzone.com/cgi-bin/dir/jump2.cgi?ID=6831>

<http://www.k3dn.org/grid.htm>

<http://www.qsl.net/vk4cp/gscalc.htm>

Les Peters N1SV (FN42ep09)

## FROM NAIQ'S WORKBENCH.....MOBILE INSTALLATION MADNESS!

Well it's been a very unfortunate series of events the last couple months. First, May 30th my truck was hit by a 10 wheel dump truck, causing me to be off the air from the mobile station until I replaced my truck on June 30th. I purchased a 2008 GMC Sierra 1500 WT, very, very similar to my 2002 GMC Sierra 1500 truck. But not quite the same. In mid year 2007, GM decided to redesign the body of all their trucks, so the 1999-2007 trucks were now known as classic body style, and 2007 and later are new body style. The new body style requires, of course, a new type of antenna mount, and a new way of routing coax, new way of routing power, and with the interior now the new design, trying to install the radio.

First the antenna. I originally had my Yaesu ATAS-120A Screwdriver Antenna mounted to a AUG-M2-L mount that bolted to the left hood mount, and worked rather well for many years, miles, and QSOs on HF and VHF. The problem was the new body style changed the hood and hood hinge, so this old mount won't fit or bolt in without a major bending and modification. So off to the internet, and I purchased a AUGM3-L mount that was intended for the 2010-2017 GM trucks, but it fit wonderfully. I did have to trim the plastic hood cover to get a nice clean fit and finish, but the antenna looks like it is home and how the manufacturer intended.

Now with that I had to route the coax. With the manufacturers' trying to make everything so air tight and waterproof, I had to resort to the same coax routing that I used on the old

truck. There is a rubber sleeve that goes between the cab wall and the door, and inside is the wiring for electrical accessories and radio speaker if equipped. With a careful snip of my little swiss army knife scissors, I made a cut just large enough on the underside of the sleeve to feed the coax through. Then I had to remove the plastic cover over the emergency brake and push the coax into the cut in the sleeve and pull it out the cab wall. once through, I quickly zip tied the coax up to



points under the dashboard to keep the coax away from my feet while driving. REMEMBER: You want nothing between you and the pedals when driving. A stray piece of wire or coax could prevent you from applying the brake or gas properly and possibly cause an accident. Once inside, I attached a PL-259 connector to the coax end.

So now I have the antenna, the coax, what's next? Power. Notice I did not say radio. And there is a

reason for this which will come later. The power can come from several sources. You can use the cigarette lighter outlet, you can tap a wire in the cab, go direct to the fuse block in the cab, go direct to the fuse box under the hood, or go direct to the battery. I was in a bit of a rush, so I opted for going to the cigarette lighter outlet. I checked it, the outlet I am using is rated for 30A, and fused at 25A. So no issue with power there. I also had an old Radio Shack cigarette lighter plug adapter, fused at 25A, but instead of soldering the wires to the adapter, this adapter has 2 screw knob terminals, so you feed the positive wire to the red



terminal, and the negative to the black terminal. With that I now have the antenna, coax, and power. Now for the radio.

Back in December 2016 I won a Yaesu FTM3200DR 2M transceiver. I had it set up in



my shack but only used it a few times. With the new truck, I felt it was time to put this radio to use until I can locate the remote mounting kit for my Yaesu FT-857D and install that in my truck. And with using just a

2M radio, I didn't need the ATAS-120 on the truck, so I swapped it out for a Hustler 2M 5/8 wave whip.

The new body style does not lend itself to mounting a radio like the old body style did. In the old truck I could remove a false panel and solid mount my Yaesu FT-857D to the dashboard frame, which was steel and grounded to the cab of the truck. The new body style has lots of space between the plastic panels and the dashboard framework. That's when it hit me.

Back in an old issue of QST, there was a write up of how one ham made a hanging bracket for his radio that used 2 rods and a split door hinge, the concept was to mount the radio to the door split pieces of the hinge and the rods would be in the holes of the hinge and bent up and over to fit into the cup holder of the center console of the car. This way the radio could be removed from the car with ease if needed, and no holes drilled into the dashboard. Moving forward to the new truck, the center seat back folds over when not in use to form an arm rest with 2 cup holders. So I went to Tractor Supply, got a 12" battery mounting kit, and a package of door hinges. I pulled the pins from the hinges, took the pieces with 3 tabs, and drilled holes in them to correspond with the mounting screws of the radio. Then I formed the rods, bending them in a vise, and made 2 U shaped pieces with the threaded side being on the long side of the U. I then put the hinge pieces on the radio, inserted the rods, and tightened them down with a couple nuts. I then test fitted the radio, adjusted the height of the hinges, and then proceeded to attach the coax and the power cord.

Needless to say, I took a couple days to get everything together and installed, but the benefits are worth it, as I now am back mobile on 2 meters for now and possibly HF mobile in the future. 73 Matt NA1Q

**Wanted:  
Articles for the Messenger**



## RADAR CHALLENGE

### 1. Aim

The RaDAR “Challenge” is a unique event aimed at promoting the use of Rapidly Deployable Amateur Radio stations. Categories may be changed at any time during the challenge. The points system is so structured as to encourage portable RaDAR operations especially moveable RaDAR stations.

RaDAR operators are encouraged to be self-sufficient during each challenge, not only with power supply and communications equipment but food, water, protective clothing and shelter, not forgetting the first aid kit.

### 2. Date and Time

00:00 UTC to 23:59 UTC on Saturday 1 April 2017,

00:00 UTC to 23:59 UTC on Saturday 15 July, and

00:00 UTC to 23:59 UTC on Saturday 4 November 2017

24 hours will give equal opportunity to the international community of RaDAR operators. RaDAR operators can define their own operating time schedule.

The 24 hour period remains but it's up to each individual to plan his / her MAXIMUM, SINGLE PERIOD, FOUR HOUR ops. He / she should take propagation into account with the ultimate goal of inter continental RaDAR to RaDAR communications in mind. (10 bonus points!)

### 3. Bands and Modes

All amateur bands are allowed including cross band contacts via amateur radio satellites. Modes – CW, SSB, AM, FM or any legal digital mode. QSOs via terrestrial FM repeaters should preferably not be used for the purpose of the challenge.

### 4. Suggested HF calling frequencies

See <http://zs6bne.wordpress.com/2013/03/06/radar-calling-frequencies/> for the RaDAR Calling

channels, the latest suggested international list of calling frequencies.

### 5. Exchange

The RaDAR challenge requires more than a minimalistic information exchange. Accurate information exchange is considered more important than a large QSO count.

Call sign, name, RS (T) report, QTH and grid locator. The grid locator of six characters is acceptable but should preferably be accurate to 8 or 10 characters for higher position accuracy (especially for moving RaDAR stations).

### 6. Scoring

1 point per QSO. Individual QSOs could be per mode, per band, per satellite, per grid location. If the moving RaDAR station has moved the required distance contact can be made with a previously worked station, again.

Suggestions have been made to call CQ including grid location, for example CQ RaDAR from grid KG34acXXyy, to help callers determine whether it is possible for a new contact with a previously worked moving RaDAR station

### 7. Categories and multipliers

The following multipliers are applicable to determine the final score. If category/mode of transport changes were made during the challenge, than calculate accordingly.

X 1 – RaDAR Fixed station (in a building away from home)

X 2 – RaDAR Field station (camping)

X 3 – Moving RaDAR station – see modes of transport below.

Modes of transport and required movement distances (moving RaDAR stations only) Vehicles, motorcycles and motorboats, etc., (motorised transport) – 6 km

Bicycles – 2 km

On foot and paddle canoes – 1 km

Wheelchairs – 500 m



Aeronautical mobile stations are considered moving stations and can communicate at any convenient time.

Note: Moving RaDAR stations can move at any time but are required to move to the next destination after five contacts have been made from the present location. The move needs to cover the required distance before further contacts can be made. This requirement tests the ability to rapidly and successfully re-deploy your amateur radio station.

If it be gentlemanly to make further QSO's before moving then please feel free to do so but the QSO's in excess of five per deployment point can not be counted for points.

### 9. Bonus points (All categories)

Five (5) points for a minimum of one satellite or any digital modes QSO involving a comput-

er, smart phone or digital modes device. (For clarity thereafter 1 point per Satellite / Digital modes QSO).

Five (5) points for the first successful same continent RaDAR to RaDAR QSO.

Five (5) points for the first intercontinental (DX) QSO

Ten (10) points for the first successful intercontinental (DX) RaDAR to RaDAR QSO.

### 10. Log Sheets

Log sheets must be submitted by 15 April 2017, 29 July and 18 November 2017 and sent by e-mail to [edleighton@gmail.com](mailto:edleighton@gmail.com)

Note: A photo of the station should accompany every log entry including each new location that moveable RaDAR stations visit.

## LOCAL AND INTERNATIONAL RADAR CALLING FREQUENCIES



### 160m kHz Info (Mode/Frequency/Location)

CW 1836 \* South Africa  
SSB 1845 \* LSB S.A. / USB HF-Pack

### 80m kHz Info (Mode/Frequency/Location)

CW 3559 HF-Pack  
CW 3560 \* South Africa  
SSB 3690 \* South Africa  
SSB 3791 USB HF-Pack

### 40m kHz Info (Mode/Frequency/Location)

CW 7029.5 HF-Pack  
CW 7030 \* South Africa  
SSB 7090 \* South Africa  
SSB 7185.5 USB HF-Pack

### 20m kHz Info (Mode/Frequency/Location)

CW 14059 HF-Pack

CW 14080 \* South Africa  
SSB 14240 \* South Africa  
SSB 14342.5 USB HF-Pack  
CW 14343 USB HF-Pack (Cross mode)  
SSB 14346 USB HF-Pack (QSY)

### 15m kHz Info (Mode/Frequency/Location)

CW 21080 \* South Africa  
SSB 21350 \* South Africa  
SSB 21437.5 USB HF-Pack  
CW 21438 USB HF-Pack (Cross mode)

### 10m kHz Info (Mode/Frequency/Location)

CW 28060 \* South Africa  
SSB 28312.5 USB HF-Pack (QSY)  
SSB 28327.5 USB HF-Pack  
CW 28328 USB HF-Pack (Cross mode)  
SSB 28360 \* South Africa