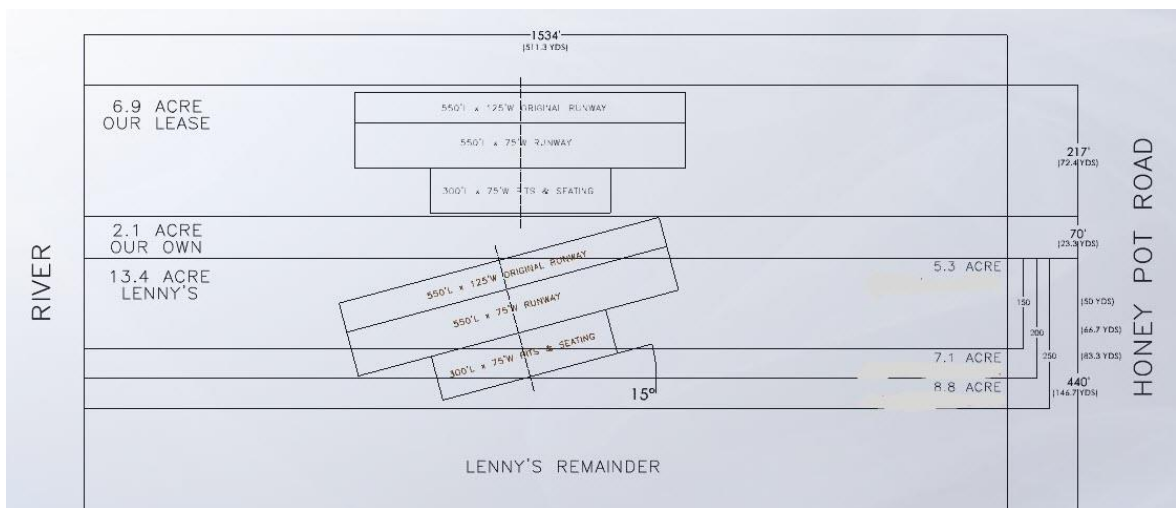


HCRC Flyer



AMA Charter #341

October 2023



Work continues to find a new place to fly.

Your board and several volunteers continue working on securing a new place to fly. One possible candidate is to lease then purchase part of the neighboring farm field. The image above depicts some possible layouts. The field under consideration would require extensive tree removal and leveling. Please see meeting minutes for updates.

HCRC Meeting Notes for the Thursday, September 7th, 2023 Business Meeting



No Quorum Present – 13 Members including 3 Executive Members present: Mike Shaw, Dan Kapinos, Bill Ewers, Pat Malone, Bob Prosciak, Dave Wartel, Ron Paul, John Darrow, Mark Wasielewski, Jose Villanueva, Ramon Villanueva, and Wayne Dawson

Reading of the minutes from the previous month was waived.

Club finances for the month of August were reported and approved.

The Executive Committee and Search Committee reviewed the land next door for possible runways. Mike presented a few different layouts for this land along with the required land purchase. This will require tree removal and leveling the runway.

We are looking for a lawyer, tree service and a bulldozer. We are investigating removing the big tree on our property.

There is no news regarding the FRIA process.

Dan has identified work projects and needs volunteers. Please contact him to sign up.

We will hold the January 1st fun fly weather permitting. We are searching for a new name. “Trespass Fun Fly” has been proposed.

A few planes have been lost to trees at the North of the runway. Be careful on your approaches!

The next meeting will be indoors at the Florence VFW. Chef Ron will be providing dinner.

Flying News & Events

UPCOMING EVENTS

- **10/5** Business meeting at the VFW in Florence
7pm Come early for food
- **10/7** - NCRCC Tailgate Swapmeet, hosted by
NCRCC, Ellington, CT
- **10/15** – Fall Swapmeet & Turbine event, hosted by
East Coast Swamp Flyers, Northford, CT (rain
date 10/22)
- **10/21** Heli-Harvest hosted by NCRCC, Ellington,
CT
- **10/21** HCRC Field Dismantling – Lots of help
needed – Watch your emails and Facebook
- **11/3** Business meeting at the VFW in Florence
7pm, nomination of Officers and BOD members)
Come early for food



Remote ID and flying R/C model aircraft for recreation Rick Rabe

I'll start off by saying that the FAA has postponed the implementation date for Remote ID until March 16, 2024. Their reasoning was that manufacturers were not ready and supplies were not in great enough volume to enable the enforcement of the requirement. There's also the fact that the FAA is behind on FRIA reviews (including ours!). So, we end up with a 6 month reprieve.

In this article I'm going to cover what Remote ID is, when it is required, what I believe the 'enforcement scenario' will look like, and some very early experience I have had with my first 'broadcast module' which is what the FAA calls any device that is not embedded into the aircraft by its manufacturer.

What is Remote ID?

The FAA's final rule on Remote ID was published on January 15, 2021. It is important to note that aircraft weighing less than 0.55lbs are not required to comply. The FAA divides the requirement into three scenarios. A 'standard Remote ID' is one that is integrated into the UAS (Unmanned Aircraft System) by its manufacturer. It must inhibit the aircraft from operating if the Remote ID unit is not operating. In addition it will transmit: location, altitude, identification, emergency status, etc. to both your UAS and its control station. These units can fly as designated within the National Airspace System (NAS). This rule is really aimed at commercial drone operators but if you own a new drone in excess of 0.55 lbs that was purchased after January 1, 2022, it is very likely it has a certificate of compliance and you are set for that aircraft.

The next tier are UASs flying at a FRIA (FAA-Recognized Identification Area). Hopefully this will be our club's field if the FAA approves it. A FRIA is issued for a 48 month period. The FRIA has horizontal and vertical boundaries. The vertical boundaries are typically 400 feet AGL but there are exceptions (both higher and lower). No Remote ID is required for any UAS operating in a FRIA. The FAA can issue temporary FRIA's (once it gets the process kinks worked out) for special cases like competitions. An example would be an R/C sailplane competition with extended vertical boundaries.

The last category is a 'Broadcast Module.' This is an after-market system that you can add to your airplane, heli etc. It can be transferred at the flying site between aircraft and become associated with your FAA registration (see last month's newsletter). Flying with these units restricts you to Visual Line of Sight (VLS) flights only. The module itself will send the same

data at the 'standard Remote ID' except for emergency and control status info. In other words it sends out location, altitude, speed and identification. There is no requirement linking it directly to the aircraft and prohibiting operation.

When is it required?

So, if you fly at a FRIA authorized flying field, no Remote-ID. If your aircraft weights 0.55 lbs or less, no Remote ID. If you fly commercially or anywhere else, you'll need at least a 'broadcast module' and definitely need to register yourself with the FAA and identify your aircraft with the number they give you.

What will enforcement look like?

As a pilot and a Part 107 UAS commercial pilot I have been dealing with the FAA for four decades. I am here to tell you that first and foremost the role of the FAA is all about aviation safety and 80 – 90% is focused on commercial air. The second important thing is that there are no 'FAA Police' patrolling the airspace looking for people to hassle despite what junk you may see on the internet, they just don't have the staff and budget nor any way to do that. What they do have are safety officers and inspectors. I have only had minimal involvement with them in my 40 years, most of it around aircraft inspections and incident reporting (thankfully only one of those). No one in the FAA is going to be driving around looking for you flying illegally.

So why bother with registration and a remote ID broadcast module or flying at a field with a FRIA? I could ask it another way, why do you have car insurance? We have car insurance because sometimes, there's an accident and we want to be covered. While the FAA doesn't have police, they do and will get involved with you if you and your aircraft are involved in a serious incident, especially if it involves manned aircraft or bodily injury or substantial property damage. As a UAS commercial pilot, I have to report to the FAA within 10 days any incident like that. If local authorities are involved, they may end up calling the FAA. In those cases you may end up relying on your remote ID to prove you were flying legally and may not have contributed to the incident. Like car insurance, it's there to protect you.

Donetag BS – Broadcast Module

I purchased an early release Remote ID to use on my DJI Mavic Pro drone and my DJI Phantom 4 that I use for commercial work. DJI plans to release a firmware upgrade for the Mavic next year to be remote ID compliant but they have no plans for the Phantom. I'm going to give a short overview of the unit that arrived from the Dronetag company in Czech Republic

(dronetag.cz). It was the first reasonably priced broadcast unit I saw. I spent just under \$110 for the unit including shipping and a few accessories. This is not an endorsement or a comprehensive review since I have only had the unit for a few weeks now, but you may find it interesting.

It may have been their advertisement that tempted me to purchase this unit.. This is what there ad says about the Donetag BS..

“Meet the black sheep of the Dronetag family. If you call the whole concept of Remote ID the epic B***S***, our Basic Solution is the perfect solution for you! Dronetag BS is a no-fluff bare Direct / Broadcast Remote ID minimum for aeromodelers, FPV pilots, and hobbyists to get them RID-ready. Compliant with EU & US standards, FAA approved.”

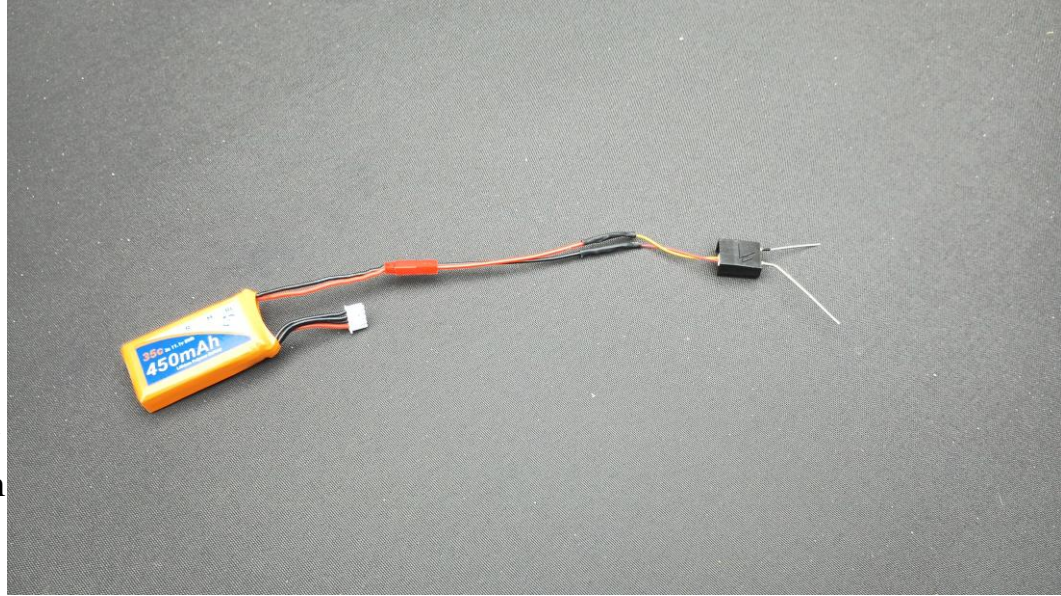
The unit itself it tiny, weighing just 1 gram (0.035 oz) and measuring just $\frac{3}{4}$ " x $\frac{3}{4}$ " x $\frac{1}{2}$ " when installed in the optional case without a battery. There are two antennas, one for the Bluetooth transmitter and one for the GNSS GPS receiver that you snap onto the sockets. There are two female sockets for power and communications, a JST SH-3 pin and JST SH-4 pin.



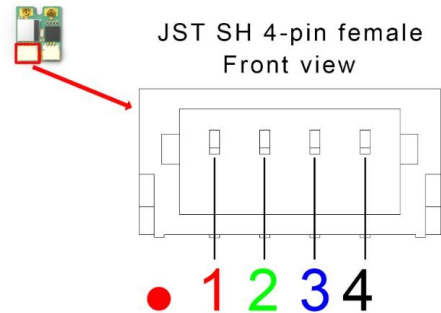
Dronetag offers a 50Mah LiPo and a charger all set to go to power the unit for an additional \$20 (or so, the price is in Euro's). I should have added that as my effort to wire a small LiPo failed and so I had to add a bigger battery.

I wasn't interested in interfacing the telemetry into my system (DJI is notoriously hard to do this with and besides, I have all the telemetry I need native). So after fussing wiring the tiny battery, I decided for the KISS method and wired on a JST plug so could plug it in for testing (and I ordered the battery and charger from Dronetag).

There are a lot of options for powering this unit. You could wire this into an unused servo port on your receiver and that would supply enough power to run the unit. You could add an inline adapter between the flight battery and the unit (that's what I'll use on my R/C planes), or you can use a stand-alone battery. The unit will take from 3.3 to 17 volts. The optional Dronetag battery is 50mah and they claim it can run the unit for 2 hours.

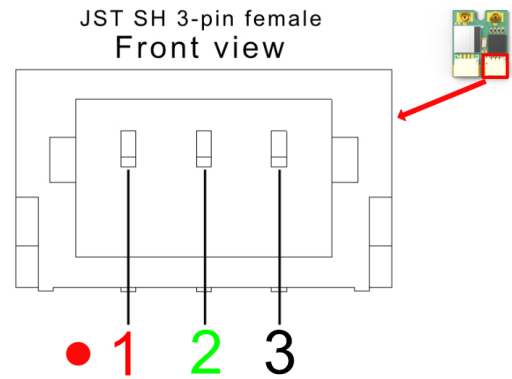


There are two JST plugs available. The UART 4 pin allows for 2-way data communication (GPS signals) to be sent to your compatible receiver. Some of these features are pending a future firmware upgrade.



Pin #	Name	Scheme Color	Description
1	VCC	Red	3.3V to 17V. Directly connected to pin 1 at 3-pin connector
2	UART RX	Green	Receive of the Dronetag device (3.3V logic - 5V tolerant)
3	UART TX	Blue	Transmit of the Dronetag device (3.3V logic - 5V tolerant)
4	Ground	Black	Ground connection

The second connector is what I used to power the unit. It will also be able to support SBUS interface to a telemetry capable receiver. I ordered the JST SH 3 pins from amazon and soldered it to a standard JST for connection to the battery. It's a little tricky as the diagram below is the view of the female plug.



Pin #	Name	Scheme Color	Description
1	VCC	Red	3.3V to 17V. Directly connected to pin 1 at 4-pin connector
2	RESERVED	Green	Reserved for SBUS support
3	Ground	Black	Ground connection



A typical JST SH 3 pin male plug has three wires, you won't be using the middle wire but you need to wire it in the opposite way you might think! As you can see the black wire is the middle, the one you don't need and when you flip the plug over to plug into the unit, the red wire will actually be in the 'ground' or 'negative' position and the yellow was the plus side. Let's just say I got more soldering practice in than I intended!

The Dronetag BS comes with a small piece of clear shrink-wrap tubing that you can slide over the unit for protection and mounting into your aircraft. If your goal is minimal weight, this is a great option. I decided to order their optional case, which adds 1.2 grams to the overall weight. It is simple to slide the broadcast circuit board, with the antennas attached into the case and then screw it shut (fortunately I has a tiny Philips screwdriver!).



To test the unit you will need a smartphone or tablet and download the Dronetag app. The app is available for Apple and Android devices. I downloaded it to my phone.

Once that was done I was anxious to see how it worked. I took the unit outside, powered up the app and plugged in the battery. The unit has an LED visible through a hole in the case and it showed green indicating power.

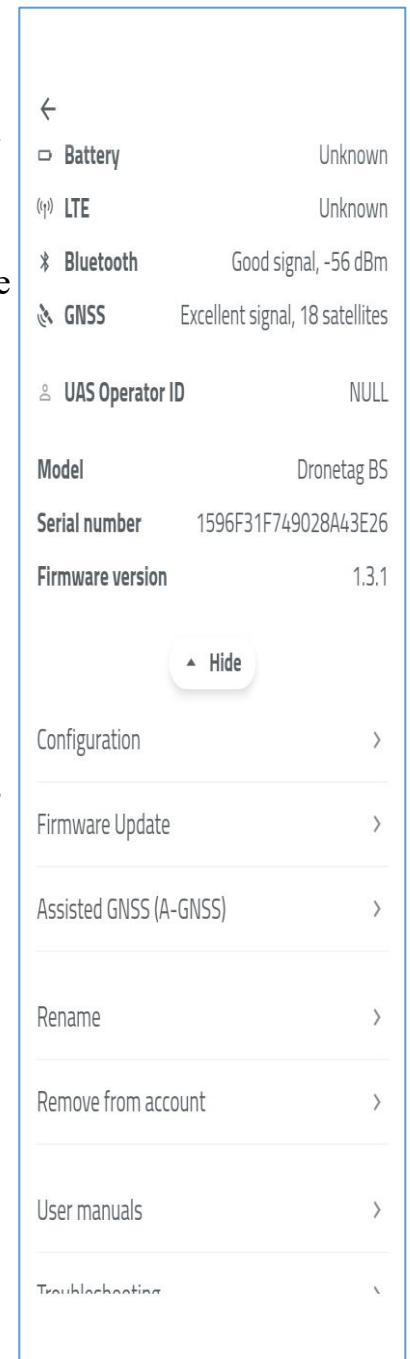
The next step is to create an account on the app (to record my inventory of Dronetags and records) and then to add this unit to the inventory. It's an automatic process, the phone or tablet listens for the Bluetooth signal and once done, the unit records the info (serial number etc.).

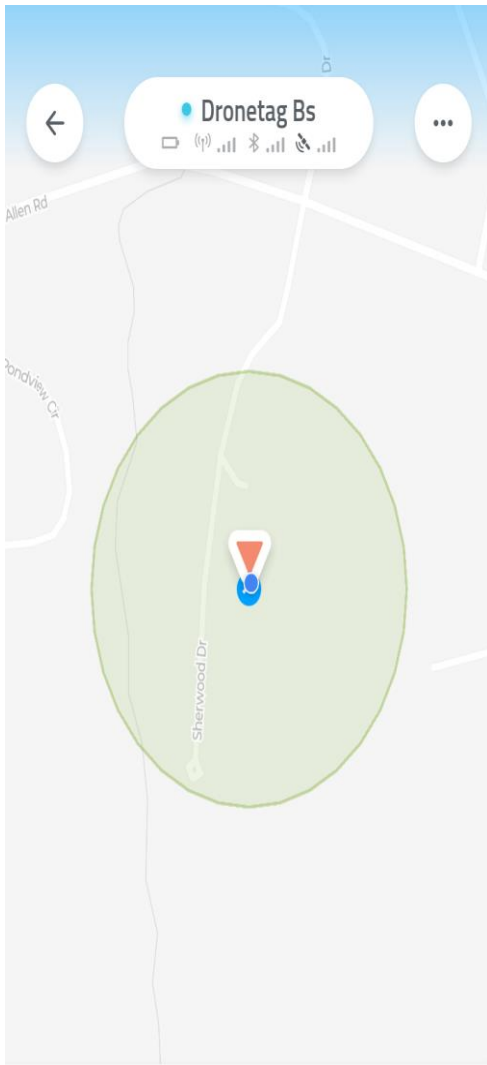
After that I went to the screen to see what it was sending. My first efforts showed the unit was not receiving any GPS signals. No matter what I did, nothing. I wrote to the company and they responded within a day! One key thing is to make sure the two antenna are at 90 degrees to each other. They also had a firmware update and a step to help the unit acquire the GNSS GPS satellites that you do before flying. All these processes are available on the app and easy to do.

Results

My initial testing has so far been on the ground (my wife was wondering why I was running around with the ‘battery thingy’ in our yard). This first display is the display of the unit itself. The quick fix from the company shows the unit is tracking 18 satellites! I haven’t entered my FAA Operator ID yet as I am still testing. That will be the certificate number you get from the FAA when you register your aircraft (remember, recreational pilots only need one registration number for all aircraft).

The ‘Assisted GNSS (A-GNSS)’ function on the screen is one Dronetag said to click if the unit is not acquiring satellites or if it is taking a while. It works. I ran it without and it did eventually acquire the satellites but when I clicked this option, it immediately acquired them. I have no idea how this works but I am guessing it uses your phone/tablet to get precise info on where you are and which satellites to look for.





This is the active map page. It shows in near real-time your aircraft's position. Here it is showing my backyard and me moving along at a rather sluggish 0.3 meters per second as I walk around the backyard. The altitude is in meters which matches what my DJI drones report for my backyard within a meter or two.

Summary

I have also recently ordered a Spektrum Remote-ID module (pre-release was \$69). I'll review that one when it arrives.

Overall, the idea of Remote-ID makes some sense given the FAA's primary job is safety. The little Dronetag BS unit seems to fit the bill for compliance and is reasonable in cost. The company has also been very responsive to requests for help. I've added a little strip of velcro to mine so I can quickly transfer it from aircraft to aircraft. I built a new wiring harness to grab the power from the various batteries I fly with, much as I did for my FPV cameras.

📍 Location	▲ Heading & Speed
42.29862, -72.39260	334.0°, 0.3 mps
⬆️ Height	⬆️ Altitude (pressure)
0.0 m	135.0 m

There's a big plus to flying with this unit. I've seen several postings on our club Facebook page about a lost aircraft in the trees. Well, if that aircraft had one of these units in it still broadcasting, I think finding the plane would be simple. It will even tell you how high in the tree it is!

This rule is going to become active next March, there's little doubt there will be a second delay and so we will need to comply. I expect we will see more and more units come on the market but for now, I am pretty happy with the little Dronetag BS.

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