Topics of Concern and Feedback to FAA NPRM

- Introduction
- Hobbyists/Origin Story/Growth
- The Need for Equality in Regulations (Hobbyists, Commercial Carriers, DSPs the same)
- RID-UTM-LAANC
- FRIAs, AMA, and CBOs
- STEM-Home Builders-Educators
- Small Business and Service Providers
- Language/Nomenclature

Introduction:

I would like to start my response to this very important and extremely difficult task that the FAA, DOT, NTSB FCC, DHS, DAC, and many other organizations and individuals, as well as businesses, are coming together to find solutions to.

The concerns about the unchecked and unregulated technology industry such as the UAS industry are well-founded and should not be overlooked, minimized, and/or vilified in the instance of companies like Amazon that are providing creative and effective solutions that will trickle down in countless ways.

Though I and many others agree that the industry requires regulation to allow it to grow as well as continue to foster and provide for more applications of the technology, the current proposal in the NPRM have the optics that create frustration as well as scare the hobbyists and general users of UAS as they seem to shut all of the doors that were opened by the same hobby users as well as garage builders and developers.

Before I go into the topics outlined above I wanted to give a brief introduction to what is a long story of my own Hobbyist to Business Owner journey and how it was all possible due to the emergence of “drone technology”.

I am a classically trained Chef that had over a decade of successful experience starting at the bottom and learning every aspect of the business I could while moving up through the ranks. Through my career path, I always had a goal of affecting the industry I passionately worked in the day in and day out. I had “dreams” of eventually becoming a consultant of sorts helping struggling businesses recognize their potential. By the time I had a wife and 2-year-old son the industry was wearing on me with the incredibly stressful long hours that kept me from ever seeing my family. This is when I found videos of drones shooting video content on YouTube.

For the next year (2015) I dove into the hobby and was fully invested emotionally and financially. Though I often was unable to have time with my family due to the hours I worked, I spent the free time I did have making my own YouTube channel and helping anyone I could on

Facebook in groups dedicated to the various hobby segments. Before long, I found myself actually seeing a potential for myself and many of those I met online to make this a real career.

In late 2015 I was asked to represent a brand at CES (2016) and jumped at the opportunity. Before I left I told my wife "I really think I am going to find a way to make a living doing something in this industry…" and that's where everything started to align. I found myself with so many networking opportunities as well as meeting people in real life I had only chatted with on social media. When I got back from the trip I was determined to find a way to help a company that needed someone's experience and skillets like mine. I told my wife in February 2016 "by the end of this year if I am not making a living in the drone industry I will sell everything and rededicate myself to my culinary career".

Within a few short weeks, I was offered a position with a founder for a startup I met at CES just 2 months earlier. On April 30th, 2016 I was able to tell my son that I would be able to spend every evening and every weekend at home and it has been one of the Top 10 moments I have had in my now 9 years of fatherhood.

In April 2019 I started my own company aimed to project manage and consult for companies that want to utilize "drone technology" but were either unsure or needed guidance as well as provide access to hardware for professional and hobbyist creating new use cases and applying the technology in creative and useful ways. We closed 2019 with over $300k in sales, consulting fees, and project spending.

This is my "American Dream" story and is one that would not exist if the current NPRM was in existence when I first had this dream.

Business Website: QuadStandardLabs.com

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Hobbyists Origin Story of Industry Conception and Growth:

Many people do not know the history behind the drone technology we are using today and how its lineage is rooted in the hobbyists that first were simply tinkerers turned "Hobbyists". RC flight has had a rich history of "Modelers" as well as aviation enthusiasts that have a passion for flight and the machines that achieve it in traditional aircraft forms. Then came the Nintendo Wii and the ingenious tinkerers that began turning the accelerometer and gyroscope having game controller into a stabilized and well flying multirotor aircraft simply to prove it's possible.

From the moment it was possible to turn a Nintendo Wii controller into a flying RC Aircraft the wheels began to spin so to speak and an entire new Hobby and eventual industry were just around the corner.

“Traditional” RC modelers had learned through the teachings of general aviation and had checklists, documentation, and even a complete and understood knowledgebase that manned aviation had provided. With multirotor aircraft the rules had not been written and what was being proven as possible continued to defy most previous logic and understanding, let alone had no rulebook.

As the initial home-brew flight controllers and open-sourced and readily available flight code began to be developed, the emerging industry was an infant one that was very disconnected and spread out in terms of scope. Drone code and Ardu Pilot began to take shape and smaller factions like FPV and “miniquads” began to form.

This quite frankly went unnoticed and unchecked as it was utilizing technology that transmitted analog video and radio protocols at the same time it was all but extinct in television and radio broadcast as well as using STM32 controllers that are today considered obsolete by most standards of product development.

Consumer “drone technology” was brought to the masses by DJI when DIY (Do It Yourself) builders created platforms capable of carrying cameras and then subsequently other “competitors” like 3DR, Yuneec, and Parrot among others entered the industry. This was a historical moment for the UAS industry as it was essentially the moment that regulation should have been applied, however it was still not being seen as important mostly due to the lack of understanding.

These products began to develop and create new technology within its segment like digital communications, sensor linked flight systems, and autonomous flight to name a few. This is when the regulations were begun to be seen as necessary and justifiably so. Section 333 and Part 107 would eventually curb and then regulate this area of the industry.

Simultaneous of the development of consumer and commercial products in the UAS industry the now new DIY side of “drone technology” began coming together and with the help of companies like GetFPV, Heli-Nation, Ready Made RC, Piroflip RC, Team Black Sheep, Spektrum, Horizon Hobbies, and so many others I cannot list created an entire segment of technology based on the original “multiwii” hardware. First Person View (FPV) was on its way to grow exponentially over the coming years.

At the beginning of FPV companies like RunCam and Foxeer where selling security cameras that the FPV builders and original builders repurposed along with creating their own aircraft frames, 3d printed products, and even small-batch micro-electronics. With various skillsets and areas of interest for how to use this newfound exciting and immersive hobby Drone Racing,

Cinematic FPV, and STEM programs began to develop from Hobbyists and their various passions. Companies like MultiGP, Drone Racing League, Drone Champions League, Hydra FPV, Drone Genius, and so many other small ideas turn into large impacts on their communities and the mainstream public.

Today you would be hard-pressed to find a school district that does not offer some sort of robotics and or drone STEM program “in-school” or “after-school”. These programs have been shown to be almost completely possible due to local pilots that are Hobbyists either building their own programs to offer or assisting districts in how they can use drones to teach. Multi GP and Hydra, as well as many other programs, have brought DIY drone building and competitive racing to so many areas with the help of local Hobbyists and teachers that the NPRM will negatively effect if not eliminate.

Hopefully, this history lesson shows the importance that the Hobbyist plays within the totality of the creation of new technology as well as the continued growth and accessibility at a local level.

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The Need for Equality in Regulations (Hobbyists, Commercial Carriers, DSPs the same):

Regulation is necessary, it is also something that must be equitable when possible. The main issues that are being argued against the NPRM are that it seems to have an overreaching approach that completely closes all of the doors and windows opened by the Hobbyists that opened them. For this reason, the Hobbyist community is up in arms against any regulation as they see no other option.

Arguments are “Amazon (and others) are buying the airspace”, “The government is taking our toys and turning them into weapons”, and “this is all about drone deliveries” are at the top of the list when arguing against the NPRM. Though these arguments all hold some water, I personally believe that most of the Hobbyists are ill-informed and misinterpreting the intentions of the FAA NTSB, FCC, DOT, DAC, and other organizations.

The task of playing catchup to the regulation causes an urgency as well as leads to a “broad strokes” approach. Unfortunately, this approach is what is leading to the uncertainty and backlash from those feeling threatened most, the hobbyists. This is why we must find common ground as well as understanding as to what happens when these “doors” are closed on our hobby and for many of us our businesses?

I have used an analogy when speaking with my fellow hobbyists and attempting to help quell the anger and backlash…

The NPRM closes the holes on what I see as “swiss cheese”. These holes are somewhat connected, sometimes intersect, and in many ways are unique and random all the same. The holes when covered provide security and allow for a more controlled industry that can first effectively classify the products and aircraft created as well as the industry use case solutions that they provide. As areas of use and products are classified and better understood it seems that these holes that the NPRM covers will not open back up very easily if at all. This is the main issue with the NPRM and must be better communicated to hobbyists as well as the organizations and communities they are part of.

It seems that the current NPRM will allow agile and well-funded companies, like Amazon, will have a much easier time developing systems and implementing new technology like Remote ID and others while the entire Hobbyist community and STEM Educators will be left without a way to comply until entirely new products are developed by companies that do not have an interest in doing so.

This is where I believe the use of exemptions and grandfathered technology could be recognized for use in much broader ways. I will speak to FRIA’s and AMA sites in my next topic but wanted to bring to light that they tie directly to Equality in Regulation. If funding is necessary to develop a sustainable and cost-effective solution for Hobbyist Recreational and STEM Education, these areas will be left without an avenue of compliance.

Financial gains come from the use of Airspace for companies like Amazon, UPS, and many others and that should not in any way overshadow the need to continue to inspire the developments by individuals and educators alike.

Airspace must be equitably and fairly given use rights whether for public use (Hobbyist) or commercial applications.

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RID(Remote ID)-UTM (UAS Traffic Management)-LAANC (Low Altitude Authorization and Notification Capability)

As discussed regulation and traffic management, as well as mitigation of risk, are givens in the future of unmanned UAS application within public spaces and more specifically within much of the current Class G Airspace that will need to be shared.

The future of the UAS industry and the number of applicable use cases for the technology will be ever-changing and the regulations, as well as systems used to surveil and recognize inappropriate use, must be dynamic to keep up with the ever-changing pace.

At every step along the current timeline of UAS integration into airspace has been met with opposition as well as eventually accepted and safely navigated using the tools that UAS pilots have been afforded like LAANC. This system does much of what is needed in order to allow for new designations of Class G Airspace when overlapping Hobbyist airspace with what would be equitable use when considering the operational airways and designated airspace that companies doing commercial and autonomous work will utilize.

Remote ID has been proposed in various functionalities and utilizing multiple protocols or transceivers. As a whole, the idea of Remote ID in its proposed form would be extremely intrusive on personal privacy of information and location information. This information can be used in a number of ways including harassment of pilots flying legal and safe missions, conflicts between municipal, state, territorial, tribal, and federal laws and regulations, as well as a number of other ways to exploit the information.

Remote ID is a viable proposal only if it is a closed system that is properly secured as well as not publicly accessible. The hardware and cost associated with Remote ID must first be understood and proof of concepts shown to work before it should be made mandatory. The industry should be given time to develop a set standard and open source solution that is readily available for as cost-effective of a solution as possible. I believe that having RID implemented on the RC (Radio Controller) would be most cost-effective for Hobbyist compliance. This would more than likely mean companies like Spektrum and Futaba as well as other Radio manufacturers will need to develop specific protocols and add additional hardware to their existing products to make them compliant.

With Telemetry coming from the aircraft to the radio we can connect the radio to the internet via cell phone or wifi and transmit the appropriate data if necessary. This however again becomes a cost and complication that would be another possible pain point.

Remote ID could be mostly negated and unnecessary for Hobbyists if LAANC and more complete education of proper flight standards and operational procedures are fostered through CBO (Community Based Organization) and possibly even Basic Knowledge Tests that provide Hobbyist Certification.

This type of approach would harken back to the original days of Model Aircraft and the AMA (Academy of Model Aeronautics) approach with traditional model RC flight.

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FRIAs, AMA, and CBOs

AMA (Academy of Model Aeronautics) has for decades been the main proponent and Community Based Organization (CBO) that represents Model Aircraft. As a VP of Lone Star Aeronuts (Charter # 3669) for the last 3 years as well as one of the Organizers of Austin MultiGP I have been at the heart of the model aircraft scene in many ways.

In the early days of drones and FPV we had a palpable division between the “Traditional” modelers and the users of all types of drones and UAS. What we found was the division came from what was perceived as a lack of discipline and safety when it came to the users of drones and sometimes specifically FPV.

Much of this concern and the sometimes outright disrespect on either side came from the basic idea that fixed-wing or helicopter pilots were typically trained using similar, if not the same, materials and concepts that manned aircraft of their discipline trained and were educated with and drone or UAS pilots had no structure or previous manned aviation techniques and protocols as it was an entirely new type of aircraft and functionality.

In many ways it was seen as “toys” versus “models” and this division in many cases drove away pilots of drones from the field as well as from the AMA. Over time we found that leadership was able to create a more all-encompassing environment by getting the pilots to interact and understand each other’s model aircraft and what it took to operate it safely.

Once we had drone pilots understanding that fixed-wing and helicopter pilots had specific needs including the right of ways to the airstrip and other specifics we found that our local group was much more unified. Unfortunately as an active member of the social community I have found that a high percentage of AMA charters did NOT have this same success and often the drone pilots were ridiculed and made to not think about becoming members.

It is my personal experience that AMA has been “asleep at the wheel” and needs to be held accountable for their lack of oversight and more importantly guidance. That being said I would ask that the AMA and all known charters continue to have access to airspace under the FRIA portion of the NPRM.

FRIAs will play an important role and it is also important to revisit the idea of how these locations can apply, be accepted, and the process of reoccurring registration.

FRIAs will need to exist for a multitude of reasons and many of which may not be ready to apply during the proposed timeframe. I am working with multiple organizations including the park that my AMA charter is located to provide access to drone pilots in a safe and organized manner. FRIA locations should not be limited in numbers, geographic area, or any other arbitrary manner. They should remain an open solution for anyone wanting to properly set up, manage, and maintain under equitable and fair rules.

Educators and institutes for learning, as well as any other programs and organization or company looking to provide access to drones and airspace indoors or outdoors, should have the ability to apply and fairly be granted access to provide a FRIA.

As the current NPRM is written my client DroneGenius.org, as well as Robotters.com, will be forced to abandon drones and the current education programs they run and continue to develop.

Home Builders-STEM-Educators

As I mentioned in previous topics discussed, the STEM and Educators that typically use drones and “drone technology” in their STEM programs mostly do so with the aid of local pilots that assist in hardware procurement, lesson planning, and in many cases developing applications that afford the students a more comprehensive and exciting education.

In my time working with Round Rock ISD as well as Drone Genius here in Austin, Tx I have found that educators are in great need of skilled users in their area usually to even find the right solutions to using drones to inspire their students. These individuals are often reaching out to local schools to attend Career Days, helping teachers connect with vendors and STEM providers that are effective in an often watered down market, and most importantly building the next possible STEM teaching device in their own free time as Hobbyists.

Without these “Home Builders” that are able to create freely and safely while operating under proper regulations, the students will suffer. We must make accommodations in the NPRM that allow for Home Builders, Educators, and STEM programs to remain active and operating safely as they have so far.

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Small Business and Service Providers

Small business is at the heart of almost every industry locally and regionally across the nation. These businesses in the UAS industry have proven to be very lucrative and the NPRM threatens that monetary gain for not only the business owners but the workers, as well as tax collection agencies.

These businesses range from everything hobby shops, online sellers, and DSP (Drone Service Providers). With much of the industry being created and then fostered on the backs of the hard work these small businesses created it is important that we carve out space in the NPRM that affords these companies to continue to provide services and equipment as well as pivot their business models, if necessary in a reasonable amount of time when fair and equitable solutions are available to them.

We cannot let the NPRM take jobs, livelihoods, and more importantly, eliminate competitive markets in lieu of larger companies taking over those roles or eliminating them by making it impossible or illegal to provide.

Language and Nomenclature

I want to conclude this public comment with the discussion of Language and Nomenclature as I believe they both are part of a bigger picture that I hope I have tied together throughout these topics…

Communication, and the hopeful recognition that the FAA and other agencies MUST have a clearer and more open dialogue with not just Hobbyists, but much like our struggle to unify all RC Aircraft Pilots and their communities, bring together the “Decision Makers” and other corporate and organizational professionals to the DAC (Drone Advisory Committee) and resolve the difference in nomenclature and language barrier.

While I sat in the February 27th meeting as well as attending the “FAA Protest” in Washington D.C. this past weekend it was very evident that all sides to this issue are not speaking the same language. Misunderstandings, as well as a lack of better understanding of the future and how we might make exceptions or rewrite any “overreach”, is at the heart of the dissension and frustration.

A unified message, with clear language that is derived from UAS userbase while integrating with the manned aviation terminology and procedures I believe could go a long way to closing the gap.

Thank you for your time in drafting the NPRM and hopefully the reading and applying the feedback given by so many passionate users of all Model Aircraft to the next draft of any regulations.

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