

Sean McGowan: Hello everyone and welcome back to Thomson Coburn LLP's Three Lawyers and a Drone Podcast coming to you from Washington D.C. My name is Sean McGowan and I'm a partner in the Federal Regulatory Practice Group and Co-Chair of the firm's UAS Practice Group. As always, joining me today are associates Tyler Black and Mike Deutsch.

Today we're excited to welcome Andrew Elefant, the Director of Legal and Policy at Kittyhawk, an enterprise drone software company in San Francisco. Andrew is a licensed attorney in California and is an experienced private pilot with instrument and multi-engine ratings as well as a certificated remote pilot. Andrew, welcome, and thanks for being here today.

Andrew Elefant: Thanks a lot for having me, Sean. I'm really excited to talk to you guys today.

Sean McGowan: Sure.

Mike Deutsch: This is Mike. Andrew, welcome, and thanks again for being on the show. For those listeners who may be new to the drone world, can you give us some background on Kittyhawk and on Kittyhawk's relationship with the FAA?

Andrew Elefant: Kittyhawk was founded in 2015 and as you can tell by the name, Kittyhawk references the location in North Carolina where the Wright Brothers flew their first flight, so it's a significant name in aviation history. We are a company of technologists, aviation enthusiasts and problem solvers and to that end, we're an enterprise drone software company. We sell solutions to large companies operating drone fleets and that includes mobile applications to help pilots in the field and also providing cloud and web applications that help customers

manage their fleet. In one sentence, we're a connected platforms to manage missions, navigate airspace and maintain aircraft in real-time and to answer your question a little bit more, we also work directly with the FAA on a number of projects so that includes B4UFLY, which we'll definitely get into, and also the FAA's LAANC Program as well. So we work very closely with the FAA on a number of projects.

Mike Deutsch: That's interesting. And you mentioned LAANC. Now for those who may not know, LAANC is an acronym, L-A-A-N-C, and it stands for the Low Altitude Authorization and Notification Capability and LAANC supports the Integration of Drone Operations in the national airspace system, commonly known as the NAS, by giving drone pilots access to controlled airspace and Air Traffic Control visibility into UAS operations. Andrew, can you tell us a little bit more about Kittyhawk's involvement with LAANC?

Andrew Elefant: Sure. I think that's a great explanation to start off with. LAANC, at its essence, is a way to give recreational and commercial pilots the authorization that they need to access controlled airspace in a much more automated process than it used to be. So to tell you a little bit of a story, before LAANC came out in 2017, the process to get authorization in controlled airspace was a little bit clunky. You had to log on to the Drone Zone on the FAA site. You had to fill out a decent amount of information on your mission, your location, what sort of things you would be doing to make yourself safe. You would send that into the system, someone at the FAA would read it and up to 90 days later, you could get a "go" or "no-go" decision on your proposed authorization. The real exciting part about LAANC is it takes that 90 day process and takes it down to about 90 seconds and as you can tell, that is a huge, huge advantage for all sorts of drone operators, both recreational and commercial because it enabled them to have more consistency in their operation and it allows increased visibility into the operations that folks are doing in the field. So we're actually one of a handful of companies that have a public-facing LAANC product.

The big news on LAANC for us was this summer, we introduced the ability to enable recreational pilots as well as commercial pilots to go ahead and do LAANC authorizations on our platform. So it's definitely a great compliance tool and a great operational tool. So LAANC is something that here at Kittyhawk we're really excited to be a part of.

Mike Deutsch: That's pretty remarkable. LAANC has certainly been a game-changer in the U.S. world. Now, one other thing that you mentioned earlier was B4UFLY, that's B4UFLY. Now B4UFLY is an app developed by Kittyhawk for recreational users to help show where they can and cannot fly and it uses interactive maps. Can you tell us a bit more about Kittyhawk's involvement with B4UFLY?

Andrew Elefant: Yeah, absolutely. B4UFLY, as you said, is the FAA's authoritative mobile application for the recreational drone pilot community to understand the airspace around them. So B4UFLY basically presents the user with an airspace tool so that they can figure out whether based on their location it's safe for them to fly. And to give you a sense of scale, so Kittyhawk, we've been working on B4UFLY for a while now, and we launched it at the end of July and it's been really exciting to see the velocity on B4UFLY as we get it into the hands of more folks in the drone community. For example, since the end of July, so in about seven weeks we've powered over 700,000 airspace searches on B4UFLY. So that's over 700,000 times that a user has opened B4UFLY, focused on a location and inquired as to whether a specific location was safe for them to fly. So those types of numbers are really encouraging for us when we are talking about getting that information into the hands of the right people because at the end of the day the goal with B4UFLY is to provide that awareness to everyone in the drone community because the more people that are more aware of what they're doing in the national airspace really keeps everyone safer at the end of the day.

Tyler Black: Hi Andrew, this is Tyler. I think you've touched upon a lot of revolutionary aspects of the casual interaction that people have with airspace

when they're trying to operate their drones that have really come into play in the last few years. And that's great to have that kind of progress and it's exciting that there's more to come. It sounds like you're interacting a lot with the federal government, obviously, to put some of these programs into place and have this public-facing platform. So can you tell us about – let's say regulatory successes and challenges that Kittyhawk has faced along the way and if you want to touch on any state interactions as well, I think that would be interesting to listeners.

Andrew Elefant: Sure. So I think a good place to start on this, in terms of regulatory successes and challenges, would probably be with Part 107. For those of you who don't know, Part 107 is the portion of the Federal Aviation Regulations that govern the commercial operation of drones. And the reason I say that this is both a success and a challenge is that the Part 107 rules are now over three years old. They came out in early September 2016 and three years later, we're seeing both a lot of success from Part 107 and also some challenges and limitations from that. For example, it's still very difficult to do advanced operations at scale under Part 107 and those that I'm referring to are things like operations over people, operations beyond visual line of sight, operations at night, those types of operations are still really limited under Part 107 and really only available with a waiver from the FAA. And night waivers are easy enough to get. Kittyhawk has one. But beyond that one, a lot of these waivers to operate outside of Part 107 are quite challenging.

I think the other regulatory challenge that we're facing right now, and part of the reason for the delay in this, is we're waiting on more regulatory guidance from the FAA on Remote ID which is a key component of the ability to do all sorts of these advanced operations. You can think of Remote ID as analogous to a digital license plate for drones. And, you know, I think those are both challenges that we're facing but as I'll speak to you in a couple minutes, that's not necessarily stopping the industry from moving forward.

Tyler Black: Right, that makes sense. One of the advancements that you got to think is coming at some point around the corner is an increased focus on multiple simultaneous uses as well, and Part 107 is not in that wheelhouse yet. But more changes are possible and the Remote ID is a big part of that. Have you found any other disconnects between maybe what industry kind of wants from these rules and priorities and where the regulatory bodies are – is there any other topic that kind of comes to mind in terms of a disconnect?

Andrew Elefant: I think that's a great question. In terms of a disconnect between industry priorities and regulatory priorities, I think at this moment in time, it's important to note where we are in the process of integration of UAS into the national airspace. In a lot of ways, we're firmly in the middle of that process. You know, we've moved from a world of 333 exemptions, registration, so there's been some progress for sure but we're not quite at the point where we're able to do some of these more exciting, high-value type of operations that are certainly industry priorities for folks to do more with their drones. I think that in a lot of ways right now, the technology and industry are leading while regulatory is lagging. This can definitely be frustrating, especially for folks like us that are building tools for enterprise drone programs and are really keenly aware of what companies want to do with their drones. I'm certainly encouraged by the opportunity to move ahead with technology solutions in advance of further regulations because companies want to leverage new technology because at the end of the day it will allow them to do their operations better and safer.

Tyler Black: And you've had a lot of success in finding partnerships with regulatory bodies like the FAA. Do you have any advice for other companies or users in terms of how they should interface with an agency like the FAA?

Andrew Elefant: There's some real opportunity for communication and education both in terms of drone operators seeking out experts or seeking out the FAA to talk about the things that they want to do and the challenges that they see from the regulatory side of things. I'm certainly not going to speak for the FAA but I

do know that something that they're really trying to do is educate and communicate with the public so that they understand the limitations of what they're not supposed to do but also the positive aspects of what they can do with their drones. I think chances are, if it affects you and your operation, it probably has or does affect others. And to that end, speaking with the FAA industry peers, industry experts, other knowledgeable parties, and just talking to them about what you're trying to do or what obstacle you're trying to overcome, can really go a long way. And so in some ways I'm saying that one of the best ways to go about this is to seek out the FAA and seek out regulators because in a lot of circumstances they're really willing to speak to the public and learn from them.

And I think the other advice I would give to companies dealing with regulatory challenges is just to seek out the right community whether you're doing something that is very industry-specific or a little bit more general, there's a lot of different online communities where people are really eager to educate and assist and push the industry forward.

I think that is a good place to start for someone facing some regulatory challenges.

Sean McGowan: Hey Andrew, this is Sean again. Really great discussion between you and Tyler, especially talking about the flights over people, beyond line of sight, multiple drones in one space, and especially using the FAA or dealing with the FAA and industry to move regulations along and interacting with them. I think that's a great segue into the next point we wanted to raise up with you is your recent article on your website. I think it was announced yesterday that the Remote ID demonstration that took place in California. Could you tell our listeners what is Remote ID and what was that experience like and what was your participation in it, and the others, and was FAA involved, and what did they think of the demonstration?

Andrew Elefant: Sure, so there's a lot to unpack there, but I'll definitely go in order.

Sean McGowan: Sorry about that.

Andrew Elefant: No, no, it's certainly a complicated issue in a lot of respects. First, for those of you that aren't aware, there's a concept in the drone world called Remote ID. The really easy way to analogize this is you can think of Remote ID attempting to put license plates on drones. Obviously, you're not going to put an actual license plate on a drone but Remote ID is the concept that drones operating in the national airspace should be able to be remotely identified by interested parties on the ground and drone operators are able and using Remote ID to identify themselves to those interested parties on the ground. We wrote a white paper on Remote ID this past Spring which you can access from our website to take a little bit of a deeper dive into Remote ID but as a concept, that's really what it is – a way to identify drones operating in the national airspace as a measure of transparency and accountability.

And to that end, the exciting news that we announced yesterday, is that Kittyhawk participated in a second demonstration of what is called the InterUSS Project. This is the second time Kittyhawk has done this. We actually participated in the first demonstration of this back in December with a couple of our industry peers. A USS is a UAS Service Supplier. So that is someone that is certified by the FAA to provide a service to the drone community, usually utilizing authoritative FAA data. One of the easiest ways to describe that is to think of anyone who is a LAANC provider as UAS Service Supplier.

The InterUSS Project, as you might imagine, is a way to identify drones operating in the national airspace but operating on a variety of different platforms. For instance, the InterUSS demonstration that we participated in last week had seven or eight different USS and a bunch of different companies flying a variety of different aircraft at the same time, utilizing LAANC to operate in controlled airspace. So in short, we had a part in demonstrating private industry collaboration of an important technology, a Remote ID, ready

to be utilized by important industry stakeholders, in advance of actual regulation on Remote ID, which that rulemaking process has been delayed throughout the year, but we're showing that Remote ID is possible and in a lot of ways it's ready to go right now.

I think the only other thing to mention is that – and why this is so important – is that not only does the demonstration show that Remote ID is technologically possible right now, but we were able to utilize it. For example, CNN, a Kittyhawk customer, they were able to, as a media company, essentially announce their presence to interested bystanders on the ground. Why that's important is because when you think about a public safety official arriving at a scene, whether that's a crime or a parade, whatever the case is, they want to know who is operating that drone flying above them to determine whether that is a threat or if it's who is allowed to be there. And so as you might imagine, that's extremely important for media companies because they are usually the first folks on the scene and they do want to proactively share information with folks on the ground so that they're able to do their job and announce that they're one of the good guys.

Sean McGowan: Okay, excellent. Thank you very much for that. Where do you see the drone industry going, and particularly with Remote ID? As you said, we've had several delays with the NPRM. The most recent information I think is that we're looking at December, late December for the NPRM on Remote ID. Do you think this demonstration helped keep that on track or do you think we're looking at NPRM down the road still?

Andrew Elefant: No, I think in a lot of ways this is a positive development no matter how you slice it. I think, as I said before, it's an important development to have, knowing that industry-led solutions exist. This isn't something theoretical that we're waiting for. In a lot of ways, this is technology leading and private industry-leading on that front and to that end, I think it does support the rulemaking process because we can show that these types of solutions are feasible and implementable without significant delay. In a lot of ways I think

that this does push the conversation forward and does make it more likely that there won't be further delays on the Remote ID front. I'm optimistic that this isn't industry versus regulators, this is industry pushing regulators forward.

And the other interesting thing to note is that there's been a lot of discussions that Remote ID, as the FAA envisions it, will reference or lean on standards developed by ASTM which is an influential standards group, and the InterUSS demonstration, which was based on the ASTM standards. So in a lot of ways, we're starting to go to where we think the NPRM is going to take us.

Sean McGowan: Right, and I agree. One last question, if I can. You guys are obviously on the cutting edge of technology in everything. Where do you think we're going in the next five years? What are we going to be talking about five years from now if we have another podcast on this topic, on drones?

Andrew Elefant: Sure. I think there's a couple things to note. One is that five years in the drone world— well it's an awfully long time. Five years ago, we were still two years away from Part 107 and hardware was taking pretty dramatic leaps forward to enable some of the operations that we see today. So five years is a really long time in this industry.

But my two cents on this are five years from now, you're going to be seeing drones do a lot more of everything in your everyday life. For example, I'm sure that there's going to be, in five years, we're going to see pretty widespread drone delivery, we're going to see a lot more drones used in public safety situations, and I think especially enterprise adoption of drones is going to be significantly higher. Right now, in a lot of ways, enterprise drone programs and the drone community — we're just scratching the surface of what we can do and the value that we're able to get out of a drone program. I think five years from now, a lot of companies and individuals are going to wonder how they ever did some of their work without drones because we really see those as being increasingly integrated to assist in work that we consider dull,

dirty and dangerous. I think those are where you're going to see drones showcasing their value. And so in five years, I think we're going to see drones at least being tooled to help in a lot of those types of jobs.

Sean McGowan: Those are all great points and I think Mike, Tyler and I appreciate it and certainly are right there with you thinking that we're going to see this explode over the next several years.

Andrew, again, thank you on behalf of Thompson Coburn LLP. Thanks very much for being on the podcast. We really enjoyed the discussion. We appreciate you taking the time to share your thoughts on the ever-changing drone world that we know and we hope you'll come back and visit us again soon.

Andrew Elefant: Yeah, absolutely.

Sean McGowan: Yeah, where can people find out more about Kittyhawk, B4UFLY, LAANC and applications that you provide?

Andrew Elefant: Sure. So, again, I really appreciate you having me on. It's been great to talk to you guys about drones and regulation and some of the exciting things that we're doing at Kittyhawk. To that end, if you want to find out more about what we're up to at Kittyhawk, I'd encourage listeners to follow the Kittyhawk Blog on our website at Kittyhawk.io. It features posts by me, and by Kittyhawk senior leadership on topics relevant to the drone industry. You can also follow Kittyhawk on Twitter and also you can follow me individually on Twitter: I'm @Uavpolicy, where I'm pretty frequently posting or re-Tweeting relevant industry news. I think those are all really good ways to be aware of what we're doing and we really try to keep others informed of what we're doing.

Mike Deutsch: @Uavpolicy – you must have gotten in on that handle pretty quickly.

Andrew Elefant: I did. That's something I've had for a while and it's just a great tool to share things with, with the community.

Sean McGowan: It's Sean, again. Any other questions or comments, Tyler or Mike?

Mike Deutsch: I don't think so. Thanks for coming on, Andrew.

Andrew Elefant: Yep. Thanks again, really great discussion.

Sean McGowan: Okay, just real quick before we sign off we do have to state the legal stuff, Andrew, as you know.

Andrew Elefant: Hm mhm.

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