

Hosted Payload Episode 1

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Transcript

Henry

Hello and welcome to episode one of Hosted Payload, the satellite and space law podcast. From Washington, DC, I'm Henry Gola. It's February, it's cold, groundhog saw his shadow, and we just had our first Sunday without football. So what a perfect time to cozy up to a new podcast. Hosted Payload is going to have two parts. In the orbital debrief, one of my Wiley colleagues will tell us three things we need to know happening in the world of satellite and space law. Then, in The Transponder, I'll chat with a guest about a space movie, tv show, or song that we've watched again. Today, that will be Mike Carlson of Amazon's Kuyper. We'll discuss The Martian. But first, let's bring on Chloe Hawker of Wiley, for the Orbital Debrief.

All right, welcome to the Orbital Debrief portion of the podcast. Joining me today is stand-up comedian, improv aficionado, AND attorney in space and satellite, Chloe Hawker. Chloe, thanks for joining us.

Chloe Hawker

Excited to be here.

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Henry Gola

So, this is the first time we're doing this. This is really exciting. So, it could go one of two ways. It could be a segment everyone in the industry is talking about, or it could be a complete flop.

Chloe Hawker

Excited to give it a shot. So, our first item up for the month is that the FCC is currently taking comments on a Notice of Proposed Rulemaking seeking to streamline the application process for satellites and earth stations.

Henry Gola

Sounds super exciting. A government agency looking to improve speed and efficiency. Seems like something industry can get behind. Doesn't seem too controversial. What has the FCC teed up in this item?

Chloe Hawker

Yea, I think everyone is excited to see this. The NPRM really has four key proposals, and we'll focus on two of them which are about the content of applications. So, one of the proposals would allow consideration of satellite applications that don't conform with international frequency allocations. The other proposal would allow operators to have multiple licenses but unbuilt NGSO systems in the same frequency band, which is also prohibited under rule right now.

Henry Gola

So what does unbuilt mean? Does that mean if I'm designing something and I'm in my, you know, satellite bunker, building a satellite and I put some screws in, is it now built or is it something else right now under FCC rules?

Chloe Hawker

Well, so that's been the subject of some debate. SpaceX, for example, has made arguments that having one satellite up should be considered built. There's also been consideration of whether it should mean they've hit one of the build-out milestones. So, I think this is kind of one of the questions that industry is wrestling with right now.

Henry Gola

So, built does seem to mean in orbit and operating.

Chloe Hawker

Yes.

Henry Gola

But currently, industry might want to be pushing on that as part of this rulemaking is what you're saying

Chloe Hawker

Right. Right, exactly.

Henry Gola

Ok, so why is this important? Why is it important to have more than one system be unbuilt at the same time, at the same frequency band?

Chloe Hawker

Well, of course as the space economy kind of continues to grow, obviously operators want the flexibility to be able to experiment and iterate and improve their systems. And, right now, the rules are really kind of from this era when this process, there were way fewer players in the game building way fewer systems. And so this is really a recognition that as this economy continues to boom, we want operators to be able to have flexibility in how they're creating their systems and how many systems they're trying to create.

Henry Gola

Gotcha. Ok, what else is teed up in this item?

Chloe Hawker

So they've also teed up a couple questions and proposals about the FCC's process for reviewing and granting applications. These are important issues for commentators. It's all about improving speed and efficiency but they don't translate particularly well for a podcast.

Henry Gola

That's good. You've taken to heart that you don't want this to be a flop. So that's good, I like it.

Chloe Hawker

Comments on this NPRM are due March 3rd, so that is coming up.

Henry Gola

Alright. Cool. What else do we have?

Chloe Hawker

So, the Office of Space Commerce recently released a request for information on what basic space situational awareness services it should provide to operators under Space Policy Directive Three.

Henry

Congratulations on getting out that mouthful, that was a lot. So, it sounds like in very basic terms, in laymans terms, satellite operators want and need to keep their satellites safe and avoid collisions when they're up in orbit and the U.S. government wants to know what information would be most helpful for this purpose. Is that right?

Chloe

Yea, that's exactly right. And according to a 2018 presidential directive, the government has to provide some basic space situational awareness data to the public and to satellite operators. So, they want to know what's out there, what's available in industry, and also what would be the most useful to industry as they start providing these services.

Henry Gola

Gotcha, and this program used to be with DOD, right? And now it's with the Office of Space Commerce?

Chloe Hawker

Right.

Henry Gola

Ok, gotcha.

Chloe Hawker

That's exactly right. So, responses to that are due February 27.

Henry Gola

Alright. Busy month if you're writing comments. What's our third item in the Orbital Debrief?

Chloe Hawker

So, our third item for the month is some fun, more general, space news. So, NASA has validated the testing results from its first full scale Rotating Detonation Rocket Engine, or RDRE. Again, sort of a mouthful. Always need to add a couple more letters to our alphabet.

Henry Gola

That's good I'm glad we have more acronyms.

Chloe Hawker

So, the RDRE is viewed as a serious step forward for deep space missions, specifically, because they produce more power with less fuel than the kind of engines that are typically used today. So, an RDRE can move bigger payloads while adding less weight.

Henry Gola

Does that also mean it can go farther into deep space than before?

Chloe Hawker

Exactly, because they would need to carry less fuel.

Henry Gola

Gotcha.

Chloe Hawker

So, the engines used...to actually function, the engines use a supersonic combustion that's called "detonation." So, it's just basically using explosions. And the testing showed that the engine would create 4,000 lbs. of thrust and it withstood 622 lbs. per square inch of pressure on the inside of the engine on average. Which is the highest pressure rating a design like this has ever received.

Henry Gola

Wow, ok.

Chloe Hawker

And, interestingly, the hardware on the RDRE was made using 3D printing processes. So, it's kind of amazing that it has that kind of durability.

Henry Gola

Holy moly. Ok, cool. And, I know you flagged the actual project name here. Can you give that to us?

Chloe Hawker

Yea, so the project is managed and funded by what I think is the fabulously named "Game Changing Development" program in NASA's Space Technology Mission directorate. So, that's a pretty fun mission name.

Henry Gola

No pressure on them. It's only that you have to change the entire game by whatever you're doing. Ok, so, what's the next step?

Chloe Hawker

So, the next step is for NASA to develop a fully reusable 10,000 lbs. class RDRE which, for reference, would be about in the range of a mid-size rocket engine. So, there's still a ways to go before these will be taking us to Mars. But, it's a very cool step forward.

Henry Gola

Ok, so if it could take you to Mars, would you go? If you were offered the chance?

Chloe Hawker

I would totally go.

Henry Gola

You would totally go?

Chloe Hawker

Yea, I totally would. Would you?

Henry Gola

Uhhh, no. But I'll be talking about that with my next guest, Mike Carlson when we review The Martian. So, stay tuned for that.

Chloe Hawker

Oh, can't wait to hear it!

Henry Gola

Alright, thanks Chloe. I really appreciate these three things in the Orbital Debrief

Chloe Hawker

Yea, thanks Henry!

Henry Gola

All right, back on Hosted Payload. Welcome, Mike Carlson. He's Corporate Counsel at Amazon's Project Kuyper, where he leads a team advising on domestic regulatory issues. Welcome, Mike.

Mike Carlson

Thank you, Henry! Thank you for having me on the inaugural or near inaugural edition.

Henry

Oh, this is the first edition. This is big stuff. You were the first ever guest. And lucky you! We're not going to talk about domestic regulatory issues today, unless they relate to the movie *The Martian*, because that's what we're discussing today. So, and this is recommended by you in fact, you're the one who suggested we re-watch this movie from 2015.

Mike Carlson

Yeah, and I'm sorry for not picking something more timely. *The Alien* was on my list, I really wanted to talk about a new book by the author whose book inspired *The Martian* - Andy Weir - which is *Project Hail Mary*. But we settled on, we settled on *The Martian*. And I think I have a good basis for picking *The Martian* here.

Henry

Nice, all right. So, *The Martian*, 2015, directed by Ridley Scott, written by Drew Goddard, based on the book as you said by Andy Weir. Star studded cast: Matt Damon, Jessica Chastain, best picture nominee. Damon was nominated for best actor. Goddard was nominated for best screenplay. It's got an 80% on Metacritic, which is really good. 91 on Rotten Tomatoes. I'm going to give a small synopsis of the plot and then we can get into it. A small group of astronauts on Mars abort their mission due to a giant storm. They leave the planet, and their colleague Mark Watney, played by Damon, for dead except, turns out, he's not dead! And he must use his wits to stay alive long enough to be rescued. So, Mike and I re-watch this movie. What's your verdict, Mike? Petition to deny or comments in support of *The Martian*?

Mike Carlson

Oh, comments definitely in support. And even your list of the cast, I think if you go a little farther down the billing, you'll see that it's just stars up and down. I mean, Jeff Daniels is Nasa Administrator. If you can get past him being whatever the name was of his character in *Dumb and Dumber* and just accept him as NASA administrator. Great performance. You've got Donald Glover, before he, sort of, became what he is today. Um, so yeah, great. Great.

Henry

Sebastian Stan, who played Tommy Lee last year in *Pam and Tommy*.

Mike Carlson

Yeah, there you go. I would have to pull up a computer to go any deeper than Jeff Daniels. But yeah, really a great movie. And it has all the elements of kind of a good space movie. Including a plan so crazy it just might work. Kind of risk adverse bureaucrats. Kind of the trapped alone theme. Um, so it just has everything.

Henry

Why'd you...what stands out to you about this movie? What'd you like the most about it?

Mike Carlson

I think, in a lot of the space, this sort of genre of space movies, like interstellar or The Martian, I like the - I'm not a scientist - but I'm sort of science adjacent. As someone who works in satellite policy and I appreciate the kind of attention to scientific detail to make it at least plausible. And, so, I think that if you read Andy Weir's books, you'll see that he does this a lot. He kind of really belabors the science, like, the science of how you could grow a potato, for example.

Henry

Right.

Mike Carlson

And that it's kind of explain in a movie and kind of like an oddly detailed way of how he makes water. Um, things like that. So, I think that's what I really appreciate. The attention to detail there. Um, and then the speech at the end I think is what really, really, nails the movie for me.

Henry

Speech at the end was great. And you're right about the science. You know, as people who are satellite lawyers, you know, it was cool to recognize when they were talking about TT and C, and they were talking about the comms and backup comms. I was like "Oh! I know what that is!" That's good. I understand that. But you're right, there is a big scientific background to it. You know they're talking about the distance to Mars. They're talking about how long it would take. That factors in a lot to the movie, right?

Mike Carlson

Yeah, it takes them eight months, yeah eight months to get there, which apparently is right. Although, again, not a scientist here. So, I'm accepting that a lot as fact. Um, yeah, that the The Martian garden. I think the one thing, just in reading kind of reviews from actual scientists about the movie, the one thing that is not realistic is the kind of event at the beginning of the movie. There's this big windstorm and that's what causes the kind of chaos that causes the crew of the ship to leave and then Watney to be left behind and apparently in Mars, because they have a much thinner atmosphere, if you had 100 mph winds, it would be like you could barely fly a kite or something. It wouldn't, it wouldn't, have caused the chaos that it caused.

Henry

Oh okay, interesting.

Mike Carlson

So, we can ignore that for the moment. The other the other piece, just for kind of space nerds, is that the way he reestablishes contact with the earth is by finding the pathfinder probe.

Henry Gola

Right.

Mike Carlson

You know, left on Mars in 1997. So, it's the year 2035 and he's somehow able to find it and turn it on and reestablish contact.

Henry

Yeah, no that that was that that was that was super cool from a communication standpoint and from a space history standpoint. Ah, do you know - trivia question - do you know where they filmed the Mars scenes?

Mike Carlson

I don't. My guess would be like Arizona?

Henry

That was my guess too! But I looked it up. I looked it up before we talked and they were filmed in Jordan. In the middle east.

Mike Carlson

That makes sense.

Henry Gola

And, apparently, he - Ridley Scott - also filmed Prometheus there. Another space movie in 2012 and then he thought it was such a great locale he returned there for this moving 2015.

Mike Carlson

Yeah, Prometheus, this was the genre I originally wanted to go with, which was horror and space. Prometheus is like the, not the latest, but it's in the Alien series, right?

Henry

Yes, exactly. Exactly. Ah, so, one of my observations was that this is the second, and probably last one we'll see, Hollywood Blockbuster where the movie's sole purpose is trying to rescue Matt Damon.

Mike Carlson

Yeah. Yeah, you might not see the sole purpose being the rescue of Matt Damon as much anymore. But no I agree. And also like, the whole genre of one person being trapped. Which, when I hear that that's the plot of a movie, I just am kind of turned off. It just sounds like, on its face boring. Like you have and, again, not being controversial but like James Franco and 127 Hours.

Henry Gola

Sure.

Mike Carlson

When it's the mountain climber stuck.

Henry Gola

Yeah, there's that one and my wife is the same exact way. So, she's always like "Is this going to be like Castaway?" And I have to argue yes or no. This was not like Castaway and I feel like it wasn't because he had contact with folks, right? And there was also the other side. Like in Castaway there wasn't like a whole subplot of them trying to rescue them. It was just Tom Hanks on an island. Ah, there's also that movie where, did you see that movie with Tom Hardy where he's just driving in a car for two hours?

Mike Carlson

Um, no I haven't seen. I was going to say there's a Ryan Reynolds movie called Buried where he's just, it's just him buried in a casket. And I don't know if that's the same. But no, the Tom Hardy one, well I'm going to put it on my not watch list to be honest. Because I just don't want movies where people are trapped.

Henry

Yes, yes, yeah, my wife hated that movie. She brings it that's like her second example of like "Is it like Castaway?" and "Is it like that Tom Hardy movie?" That's why I watched The Martian - that's why I re-watched The Martian by myself. Because I didn't remember. But I could have told her, and in retrospect it was not, so it's very very very watchable. One thing I might have changed, and I don't know, did you read the book? You read the source material, here?

Mike Carlson

No, I didn't read the book. Although now, because I watched the movie first...that's my other thing. If you watch the movie...

Henry

Oh, it's hard. It's hard to go back to the book even when the book is better, right? Um, it's hard. It's hard to go back because you know what's going to happen. But I figured this was a leftover from the book. Jessica Chastain is 2 years older than me, right? Um, but she's listening to disco? I thought that was odd. Right? I thought they might have given her like 90s boy band, like for the same effect, right? But, she had disco music and she's not old enough to have liked disco. So, I thought that was odd.

Mike Carlson

Was it? Was it like modern day disco or was it was it actual like Beegees? Because I'm thinking like in the year 2035 maybe disco comes back?

Henry

Maybe disco comes back. You're right. Because it is 2035. So, that's true. And then what they, I guess, what they really could have done is had music from present day that Ridley Scott didn't like. And then in 2035.

Mike Carlson

Well the cycle for music is things come back every twenty years. So, if you're doing the math, she should be listening to music from what 2015.

Henry

Right? That's what I'm saying. Because when the movie came out, they could have like panned whatever was popular then that the director didn't like.

Mike Carlson

Yes, exactly. Yeah, exactly. Well, that's a missed opportunity, I guess. But I think that the scientific accuracy of the movie is something worth investigating a little more, just because I think that a lot of movies that I really like are movies that you can watch again and again and again. And there's attention to little details that you don't, that you don't appreciate at all. And they just show the thoughtfulness that went into the movie. And like the example that I'm thinking of is, like, in Back to the Future when Marty goes back. Like I think they initially leave 1985 from the Twin Pines Mall. Which, like a lot of places, is kind of named after a geographical characteristic of that place.

Henry Gola

Right.

Mike Carlson

And he goes back in time to 1955 to the original farm where the mall was built. And he, and I think the farmer at that site chases them with a shotgun and he knocks over one of the trees. And then when he goes back to 1985, it's Lone Pines Mall or Lone Pine Mall, or something like that. Like the movie doesn't even mention it. It's just a detail that's just been meticulously thought through and I feel like there's a lot of that in The Martian.

Henry

Right. Yeah, there was. I liked when he left the note in the Rover, right? Because it was sort of like this this like um. I mean obviously the movie's very hopeful, right? There's plenty of space movies that go the opposite way, that are just dread, right? It's you're on your own and the ending is not happy, right? It's the opposite. It's just like, you know, you're in space, it's over, and it really is over. But for this, it was hopeful with a hopeful ending. But what I was getting at is, he leaves his note in the Rover for whoever comes next, right? Because they are going to go next and then at the end of the movie you see that the next missions already happening and the folks who, who are the astronauts are back on earth except for Martinez who goes back up. So.

Mike Carlson

Yeah, when, when, I think when he gets back to earth, that the Aries Four, which is the next mission to Mars, that was going to take place like five years after is just leaving earth. And that was what he was going to have to originally wait for, unless -

Henry

Yeah.

Mike Carlson

Do we have to get a spoiler alert for a movie that was released six...?

Henry

I don't think so. I think if you haven't seen The Martian from 2015, you know, I yeah. I mean.

Mike Carlson

You're not gonna ever, I think. We can get straight to this review. Um, yeah, like the that the Aries is leaving just as he gets back to earth. He's, he's, saved by...So another, I mean another kind of, feature this movie that's worth exploring, cause I feel like this is this comes up in a lot of space movies, is the there's a plan that's kind of put on the table that's just completely crazy. But it might work. I guess this is a lot of movies, but space movies in particular, like Apollo 13, you've got this longshot around the moon and here you have, I think it's secret...

Henry

Yeah, yeah.

Mike Carlson

Chinese rocket and then a sling shot around earth to get to Mars quickly.

Henry

Well and what Damon - and they have to rip - they have to get rid of all the mass on his MAV for him to get up there. And he goes up with a tarp and he blows a hole in his own suit to "iron man" as he calls it. To hook up with Jessica Chastain while she's floating in a chair. So that's, they had they had me up until that. That was, that was a little crazy.

Mike Carlson

Will this totally plausible science. Totally scientifically plausible up until then. The growing potatoes, the making water. But.

Henry

Ah, right? That all seemed fine, right? So, one last question here and yeah I know you have kids. I have kids. So, one thing I thought about here. And different that you brought up Interstellar earlier. Is "does the movie change if Matt Damon has a family or has kids, right?" Because often you'll see the guy who's trapped, like The Odyssey type, right? Where he's trying to get back home to his family. But here, there there was in that, it was just sort of him, his brain, and his will to survive. But not, not for some greater purpose. It was really just about him. What do you think? That's a deep question. But.

Mike Carlson

Ah, I mean it's a deep question. I mean, I can. I'll dodge that question. Because I'll say I can't, can't, opine on the, you know, the relative value of a parent's life versus a nonparent's life or something like that. But I did think that there was something there about just the, let's just call it, irrationality of what everyone on Earth was willing to do and spend to save one person. You know, it seemed like certain death for the whole crew of um, do we do we? Is it the Hermes or the Hermes? I can't remember.

Henry

Right. Well, if it's fashion, it's Hermes. I think if it's Greek mythology, it's Hermes. So, I think I think we'll go with Hermes on this one? yeah.

Mike Carlson

Perhaps. Okay, so yeah, we'll go with Hermes. Okay, yeah, for the Hermes, you know, eight months there eight months back you know, almost certain death having to hook up to the sort of secret Chinese rock. Like, there's a lot of irrationality involved. But then you go back to, the kind of irrationality of people in general, when you

have one person who...Like child, a child cot in a well. Like there's no amount of money that society will not spend to save them. And I think that you have the same thing with him, but whether, whether, it would have been different if he had kids? I think he would have been 15 pounds heavier.

Henry

Right.

Mike Carlson

But other than that, it's a good movie.

Henry Gola

And ready for a golf trip, which I'm taking on Friday. So, that's good.

Mike Carlson

Right.

Henry Gola

Alright, Mike. Well, you're 15 minutes on the Hosted Payload podcast are up. I appreciate you joining the inaugural journey, here.

Mike Carlson

No, thank you, this was great. Thank you for having me. And this is probably the end of my 15 minutes of fame, too so.

Henry Gola

Let's hope not. Thanks for listening to Hosted Payload. Thanks to Mike at Amazon Kuyper and to Chloe at Wiley. You can find us at wiley.law. Search for TMT.