

NEWS

FCC & SPACE JUNK

A new and contentious five-year limit for getting rid of dead satellites could slow the growing orbital litter problem—if people actually abide by it.

DARREN MCKNIGHT

HAS long believed that satellites should be moved to a much lower orbit ASAP after they die, so they don't pose a risk of crashing into other spacecraft. Perhaps someone's been listening. While current policies say space agencies and companies can leave junk in orbit for up to a quarter century, last week the US Federal Communications Commission adopted a much shorter limit: five years.

The FCC's rule applies mainly to US companies, or at least to anyone who wants to launch a satellite that needs a license from the agency to use a slice of the electromagnetic spectrum for communication. The rule doesn't have the force of law, and it doesn't yet have backing from NASA or Congress. But McKnight sees it as an important shift that other policy-makers may follow. "I actually think it should be a one-year rule. The five-year rule is just an intermediate point," says McKnight, senior technical fellow at LeoLabs, a space-debris-tracking company based in Menlo Park, California. "I'm very happy to see the FCC taking leadership, saying we really need to be responsible, and we need to look at sustained, safe space operations."

"Deorbiting" a dead satellite means moving it to a lower orbit, where it will eventually fall into Earth's atmosphere and burn up—a waste incineration solution, rather than leaving garbage just floating around, or developing new space trash cleanup technologies to pick it up. Next-generation spacecraft might be equipped with thrusters and fuel reserves to make the job easier, although that will be an engineering challenge for the operators of very small satellites, like CubeSats. It will also likely add to launch costs and might break limited budgets.

The FCC proposed something similar in 2020 but met with resistance from some industry and space agency representatives. This time could be different, McKnight says. At its meeting on September 29 in Washington, DC, Sankar Persaud, an FCC electronics engineer, told the commission: "Disposal must be completed as soon as practicable but no later than five years after the end of mission. Post-mission disposal is essential for the mitigation of orbital debris."

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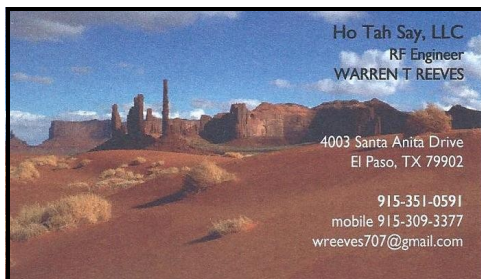
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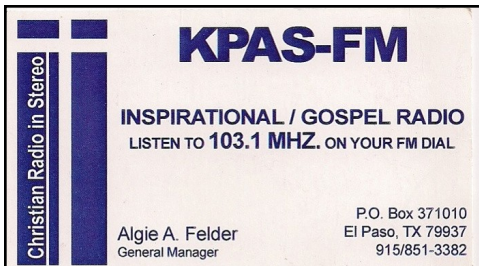
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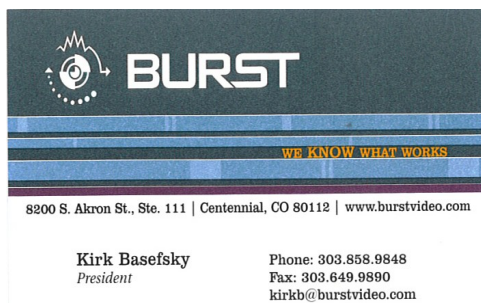


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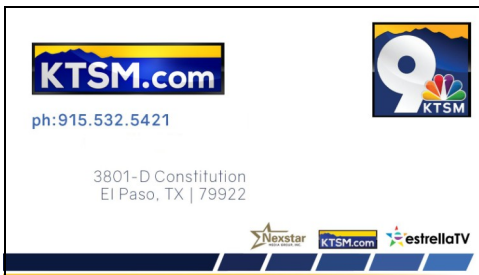
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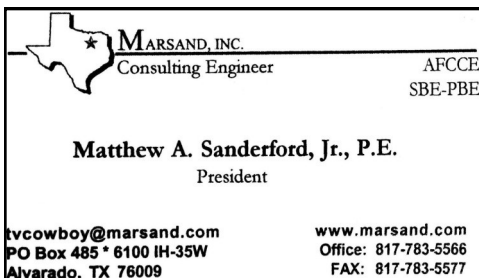
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NASA and the European Space Agency, as well as some satellite designers and manufacturers, don't share that perspective. The space agencies continue to adhere to a 25-year rule, developed in the 1990s by NASA researchers and others as part of orbital debris mitigation standard practices. (A spokesperson for NASA's Orbital Debris Program Office declined WIRED's interview request but pointed to statements published in 2019 and 2020 supporting a 25-year rule as the optimal balance between limiting debris and limiting propellant costs and complications to missions.)

Other parts of the US federal government aren't on board with the FCC's new guideline, either. A bipartisan group of congressmem-
bers sent a letter to the agency on September 27 backing NASA's approach. And at a conference on September 30, the head of the Office of Space Commerce said that the FCC had pushed the limits of its authority.

Meanwhile, the interagency National Space Council, led by Vice President Kamala Harris, called for NASA to conduct a new study, which will be completed in 2023, investigating whether the 25-year deorbit rule needs to be revised

There's an international element to the debate, too, as the FCC's rule could apply to some satellite operators beyond the US. "The FCC is trying to design this so that it's not only applicable to US license-seekers, but anybody who wants to access the US market. They're trying to flex their muscles in a way that creates a rule that applies to other space operators," says Bruce McClintock, head of the Space Enterprise Initiative of the Rand Corporation, a nonprofit research organization in Santa Monica, California..

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EL PASO, TX SBE CHAPTER 38 MEETING MINUTE

DATE 9/13/2022

LOCATION: ZOOM ANTONIO

MEETING CALLED TO ORDER: 11:04 AM, BY ANTONIO CASTRO. WE WERE ONLY 7 (SEVEN) ATTENDANTS

REPORT OF THE SECRETARY: MINUTES IN THE SEPTEMBER NEWS-LETTER. ACCEPTED BY DAVID HALPERIN, SECONDED BY WARREN REEVES

REPORT OF THE TREASURER: \$ 4,621.22 IN THE BANK. ACCEPTED BY NORBERT MILES, SECONDED BY DAVID HALPERIN.

REPORT OF THE CERTIFICATION COMMITTEE: OFFERED REINBURSTMENT OF COST OF THE TEST TO NOE RODRIGUEZ (CBNT).

REPORT OF THE MEMBERSHIP COMMITTEE: STILL DAVID GRICE OFFER TO HAVE HIS ALAMOGORDO RADIO STATIONS GROUP AS SUSTAINING MEMBER.

REPORT OF THE FREQUENCY COORDINATOR COMMITTEE: NO PROGRESS WITH THE ISSUE WITH THE INTERFERENCE OF THE MEXICAN TV(CD. JUAREZ) WITH CHANEL 14-1, CONFUSING THE BRANDING OF KFOX. BRUNO CRUZ ASKING THE HELP OF THE SINCLAIR GROUP TO THE RESCUE.

REPORT OF THE SCHOLARSHIP COMMITTEE NO REPORT.

REPORT OF THE WEBSITE COMMITTEE: NOW 3918 VS. 3815 EQUAL 103 HITS. WOW !!! TO UPDATE THE EXAM SCHEDULE FOR SBE CERTIFICATIONS.

REPORT OF THE EAS CHAIRMAN: TEXAS AND NEW MEXICO MONTHLY TESTS WERE FINE.

REPORT OF THE PROGRAM COMMITTEE: ACTUS PRESENTATION AND DEMONSTRATION TO BE IN NEXT ZOOM MEETING.

NEW BUSINESS OR ANY ITEMS FOR THE CHAPTER INTEREST: TRAM WAY FROM KFOX PERFORMING TESTS OF THE REPLACEMENT GEAR BOX INSTALLED. WILL START IN OCTOBER 1ST.

OTHER. .NONE.

NEXT MEETING DATE AND LOCATION: OCTOBER 11th AT 11 AM FOR A ZOOM PRESENTATION.

Keep an eye in our next zoom meeting. Our guests will bring the ACTUS DIGITAL monitoring.

OCTOBER PROGRAM

FOR LAST MONTH OF SEPTEMBER, WE HAD OUR REGULAR MEETING IN THE "ZOOM" MODEAND THERE WAS NO PRESENTATION.

NOW, FOR THIS OCTOBER MONTH, WE ARE GOING TO HAVE A ZOOM MODE CHAPTER MEETING

WHEN: TUESDAY OCTOBER THE 11

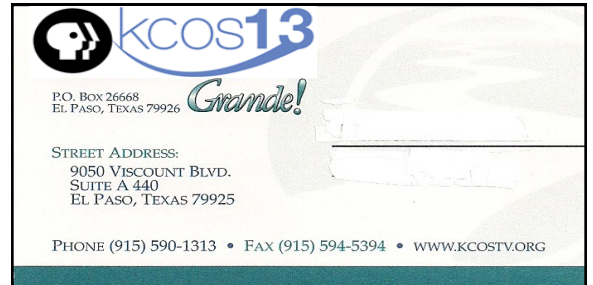
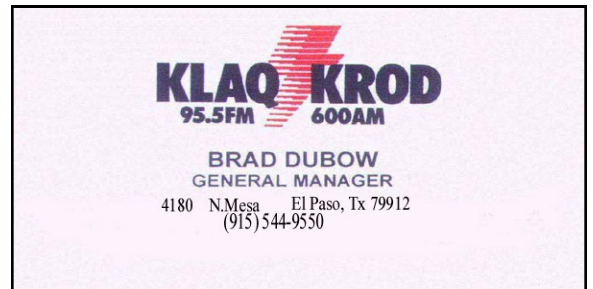
WHERE: AT YOUR PC OR CEL PHONE

TIME: 10:30 AM FOR WELCOME AND CHAT AND THEN, 11:00 AM MEETING WILL SART.

OUR GUEST THIS TIME WILL BE **KEN RUBIN** FROM **ACTUS DIGITAL**. HE AND HIS GUEST WILL DEMONSTATE THEIR MARKET-LEADING QUALITY MONITORING AND COMPLIANCE LOGGING PLATFORM.

THEY WILL SHOW THE OTT STREAMING AND A SNEAK-PEEK AT ACTUS V8.5 ANNOUNCED AT IBC IN SEPTEMBER WITH THE LATEST IN OTT QUALITY MONITORING.

SEE YOU THERE !!!



And others pay attention to US guidelines: For example, the United Nations Committee on the Peaceful Use of Outer Space adopted the 25-year rule in 2010, and it became the international standard. But the lack of coordination within the US government right now on the proposed five-year rule could limit its potential effectiveness, McClintock says.

Like ubiquitous plastic waste in oceans, orbiting junk has been building up for decades, and tens of thousands of pieces of trackable debris now hurtle through low Earth orbit at an altitude of 1,200 miles or lower, along with millions of bits too small to be tracked but not too small to damage a satellite. That means massive networks like OneWeb or SpaceX's Starlink could be victims of debris impacts, even if the companies make an effort to promptly deorbit their own satellites. Leaving junk in space for less time means moving it lower down, so it burns up sooner. McKnight argues that satisfying the five-year rule is worthwhile, and a one-year rule would be better, because that would mean pushing defunct satellites to an altitude below 250 miles, which would limit risks to the International Space Station, China's Tiangong space station, and other crucial spacecraft. And he thinks that technological advancements, like a shift from chemical to electrical propulsion, will make it possible to move a satellite even if only 1 percent of the launch payload's mass is fuel.

Other innovations might help too, says Marlon Sorge, aerospace technical fellow at the Aerospace Corporation, a federally-funded research and development center in El Segundo, California. "Adding propulsion for small satellites is pretty difficult, but there are other options, like drag-enhancement devices. These are things that deploy a long tether or a sail that increases its area," he says.

Importantly, the FCC's rule also will apply to upper-stage rocket bodies. Many of the old-timers in orbit were left behind decades ago by the US, China, and Russia. But since rockets can be too big to burn up upon reentry, they need to be brought back to Earth in a controlled manner, to an unpopulated patch of ocean.

McClintock points out that the biggest problem isn't how much time owners have to deorbit their spacecraft—it's that there's no enforcement mechanism ensuring that they follow through on their plans. "An argument against a five-year rule, people will say, is that it's a bigger concern that people are not yet complying with the 25-year rule," he says. "If we had a higher compliance with the 25-year rule, we wouldn't need a five-year rule."

Still, when it comes to these controversial license requirements, it's better to be safe than sorry, McKnight argues: "The space environment is not as forgiving as in air, maritime, and land environments. You don't have aviation accidents affecting the next flight. In space, when the accident occurs, it's lingering for decades or centuries."

Update 10-5-2022 6:30 PM: This story was updated to clarify Darren McKnight's comment about a one-year rule.