

House Bill 13
Solid Waste Management – Prohibition on Releasing a Balloon Into the Atmosphere

Dear Chairman Barve and members of the Environment and Transportation Committee,

Good afternoon. Thank you for allowing me to address this committee. My name is Kevin Zembower, and I am an Amateur Radio operator, or ‘Ham’ radio operator. My call-sign is KC3KZ. I request that you amend the current text of House Bill 13, Prohibition on Releasing a Balloon Into the Atmosphere, to exempt the launching of balloons by amateur radio operators that contain a radio tracking device.

The launching of these balloons is a very active sub-hobby in amateur radio operations. These small and light balloons are often referred to as ‘picoballoons,’ to distinguish them from the much heavier and larger balloons that are most frequently launched by the National Weather Service. Picoballoons most often consist of a single Mylar party balloon, or rarely two or three, attached to a radio tracking device. This device often weighs under 20 grams, the weight of about four nickles, and includes a radio transmitter, single chip computer, GPS monitor, antenna and solar cells. An example can be found in figures 1, 2 and 3. These devices most frequently send identifying information (call-sign), GPS latitude, longitude and altitude, and can have other sensors for light intensity, temperature and other data. The



*Figure 1:
Picoballoon
launched by the
Naval Academy in
2018.*

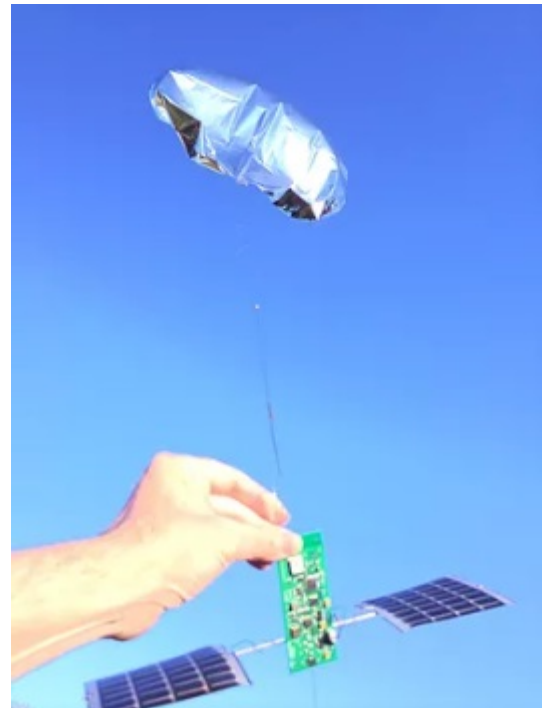


Figure 2: Picoballoon launched by radio amateur WB8ELK in Alabama.

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signals are received by radio amateurs all over the world, and are relayed to central Internet sites, where the data is collected, visualized and can be downloaded and analyzed

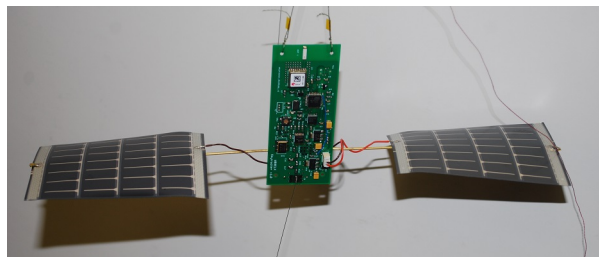


Figure 3: Picoballoon payload for NA 2018 launch. This Skytracker weighs 12 g.

In addition to being a source of enjoyment to radio

amateurs, launching these balloons provides other benefits. Many aspects of this hobby, such as calculations for construction, testing of materials and communication protocols, and collecting and analyzing the data, are incorporated in Science, Technology, Engineering and Mathematics (STEM) programs in elementary and secondary schools, as well as colleges and universities. Often, it is a radio amateur operator who, in cooperation with the teacher or instructor, introduces and supervises these activities. In fact, it would be illegal for a non-ham to use the frequencies allocated for radio amateur communications to track these launches.

I don't believe that the problem that you are trying to address with this legislation would be significantly harmed by the exclusion of balloons launched by a radio amateur with a radio tracking device. I believe that you're trying to address the environmental harm caused by the release of dozens or hundreds of balloons at a single event, with the purpose of just seeing them rise into the sky.

Picoballoon launches by radio amateurs are a relatively rare event. Estimates from a poll of radio amateurs engaged in this activity ranged from 60 to under 100 balloon launches per year. Compare that to the launching of 92 balloons per day from United States National Weather Service.

It is true that these balloons are, by and large, not recovered. They are designed to fly at an altitude of 10,000 to 40,000 feet, and travel hundreds or thousands of miles. The luckiest of these orbit the earth

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multiple times. They most often descend due to the rupture of the balloon, and fall to earth either in an ocean or a sparsely populated area. When falling in water, the weight of the payload causes them to sink to the bottom. On ground, the weakness of the radio signal and the imprecision of the GPS data (they are only located inside a 70 by 100 mile square) means that they are seldom recovered, and when they are, it's just by luck.

I believe that the intent of this bill would not be harmed by adding another exemption to the list of the three current exemptions, for state or federal agencies, state or federal contractors, or for educational institutions. I am asking you to consider adding language similar to this to the list of exemptions (B-1-IV): **“a federally licensed radio amateur launching a balloon containing a radio tracking device.”** This would maintain the intent of this legislation, to prohibit the mass release of many balloons at one event, while preserving this activity for radio amateurs and others who may benefit from it.

Thank you, again, for allowing me to speak. I'm happy to answer any questions that you might have.

-Kevin Zembower

KC3KZ