

The Center for Space Standards and Innovation (CSSI) hereby respectfully submits its comments in response to the Notice of Proposed Rule Making, FCC 18-44, released April 17, 2018 in the captioned proceeding (the Notice). The Notice seeks comment on a proposed streamlined mechanism for authorizing and licensing small satellites.

Our comments are as follows:

We feel that the proposed streamlined application text related to estimation of collision risk could use some further refinement and clarification. Suggested new version could be as follows: "... applicants certify that, during the orbital lifetime of each spacecraft, the probability of each satellite's risk of collision with large objects is less than 0.001. This is consistent with technical requirements developed by NASA for its space missions" (you may wish to add to Ref. 122 the section and page #, i.e., Process for Limiting Orbital Debris, NASA-STD-8719.14A w/Change 1, 2012, Sec. 4.5.2, p. 32).

We also feel that it would be best if the FCC consider providing an "online Pc assessment tool" that applicants can run themselves (and provide FCC with the inputs they used when running it). It is our feeling that the standard applicant, especially for those operators qualifying for this streamlined process, will not have the technical familiarity and subject matter expertise sufficient to "certify" their ability to assess collision probability. At the same time, it could be good for the FCC to allow sophisticated applicants to use a higher-fidelity (and less conservative) Pc estimation approach if the conservative online tool indicates a violation or their spacecraft shape and attitude profile warrant it.

One potential simplified way of assessing collision risk against larger objects that you consider posting on the FCC website is the "NEAT tool parametric results website" (<http://www.comspoc.com/neat/>) or perhaps a refined version of them. The applicant could be directed to input an encounter radius equal to the summation of their maximum radial distance (half of maximum length) of their spacecraft) PLUS an FCC-mandated large satellite assumed size (e.g., 4 meters). We have demonstrated that the NEAT tool yields very good collision probability results and have independently verified it using six other independent techniques. We'd be happy to discuss this with you further at your convenience if you are interested in learning about it.

Given that they could deploy up to ten spacecraft, you may want to consider a fleet-summed time-integrated value for the Pc constraint. Not sure what limiting number you'd want to adopt, but from a top-level perspective, it seems like an operator flying 1 spacecraft having a $P_c = 0.001$ over its lifetime vs an operator flying 10 spacecraft (each having individual spacecraft $P_c = 0.001$ but having a combined $P_c = 0.00995512$, or ten times that value) unfairly penalizes the first operator.