Narrative Description

General Atomics hereby requests an extension of the license term (ELS File No. 1064-EX-CN-2020) until October 6, 2028, an additional period of approximately two years.[1] As demonstrated below, General Atomics calculates that the GAzelle satellite (formerly known as OTB-3), authorized by the license, will be able to execute its decommissioning plan under the extended license term with greater than 90% reliability, satisfying both NASA and FCC requirements.[2] The additional operational time will allow General Atomics to continue to obtain valuable data from both the RADMON and Argos-4 payloads onboard the satellite. For these reasons, General Atomics requests that the FCC grant this extension application.

The GAzelle satellite was authorized on April 28, 2022, with a license expiration date of August 15, 2026. Because of ministerial reasons resulting in the grant of the license for less than five years[3] and unrelated launch delays, General Atomics will only be able to operate GAzelle for less than 4 years under its existing license (absent an extension).

General Atomics previously demonstrated that GAzelle had a 0.91318 probability of completing its 5-year mission and being able to successfully deploy the drag augmentation device and deorbit the satellite consistent with NASA and FCC requirements.[4] As discussed below, updated calculations show that GAzelle has a 0.91040 reliability probability of successfully decommissioning, if the license term is extended to October 6, 2028. Accordingly, GAzelle will continue to meet reliability requirements.

The initial estimate for the GAzelle satellite reliability was derived from the NASA Rapid III catalogue for an "SSTL-150 ESPA", which identified an approximate general spacecraft reliability probability of 0.92 after a 5-year mission.[5] This value was then multiplied against

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[1] For historical context, because the FCC's ELS database system will not allow applicants to file a renewal application more than 90 days in advance of the license expiration date, General Atomics previously filed a license modification application (ELS File No. 0234-EX-CM-2025) on December 11, 2025, pursuant to then-condition 5 of its license, requiring any license extension request to be submitted at least six months prior to the license expiration date. *See* Grant, at Condition 5, ELS File No. 1064-EX-CN-2020, Call Sign WL2XRP (granted April 28, 2022; reissued May 22, 2022) ("GAzelle Grant"). Subsequently, the Office of Engineering and Technology ("OET") dismissed the modification application and revised Condition 5 of the license (twice), ultimately requiring General Atomics to file any renewal request within a five-day period between May 17, 2026 (90 days prior to the expiration date) and May 21, 2026, rather than at least six months prior to the license expiration date. *See* Grant, ELS File No. 0234-EX-CM-2025 (granted April 28, 2022; reissued May 22, 2022; reissued January 12, 2026; reissued January 20, 2026).

[2] *See* NASA-STD-8719.14C, Requirement 4.6-4, Reliability of Postmission Disposal Operations in Earth Orbit (Nov. 5, 2021); *see also GAzelle Grant*, at Condition 5 ("The request [for extension] should include information concerning the reliability of post-mission disposal for any extended period of operations requested.").

[3] General Atomics understands that the less-than-five-year license period was a result of the desire to align the dates of the GAzelle experimental authorization and a companion federal filing, which had already been submitted in the Government Master File (GMF) database. Indeed, the GAzelle Grant specifically contemplates that General Atomics would seek a renewal or extension of the FCC license. *See supra* notes 1-2.

[4] *See* Letter from Tony Lin, Counsel for General Atomics, to Marlene H. Dortch, at 2 (dated April 13, 2022)

[5] *See* Letter from Tony Lin, Counsel for General Atomics, to Marlene H. Dortch, at 2 (dated April 13, 2022); *see also* ODAR, Application, ELS File No. 1064-EX-CN-2020, at 26 (Dec. 24, 2020).

other reliability parameters (0.99999 for the frangibolt release, 0.99266 for survival of critical components, and 0.99994 for mechanical deployment of the drag sail), yielding a total reliability probability for successfully decommissioning after a 5-year mission of 0.91318.

The blue curve in the graph below models the initial reliability from launch of the GAzelle satellite and is based on a Weibull shape parameter of 2, which provides a conservative projection for assessing spacecraft reliability over time. The curve shows a 0.92 reliability probability after a 5-year mission, consistent with the NASA reliability probability assessment for the spacecraft.[6] (As discussed above, the spacecraft reliability curve is then multiplied by the other reliability parameters discussed above, which are conservatively assumed to be constant probabilities over the mission, yielding the 0.91318 total reliability probability for successfully decommissioning after a 5-year mission.)

The GAzelle satellite launched on October 7, 2022, and has been free from any failures that would impact satellite reliability at the end-of-mission. The green curve in the graph below updates the spacecraft reliability based on the successful three-year operations of the satellite and the extensive redundancy inherent in the satellite design. The updated spacecraft reliability curve shows a projected spacecraft reliability of 0.91720 on October 6, 2028,[7] which results in a probability of successfully decommissioning of 0.91040 (= 0.91720 (spacecraft reliability) * 0.99999 (frangibolt release) * 0.99266 (survival of critical components) * 0.99994 (mechanical deployment of the drag sail)), meeting the 0.90 reliability requirement.

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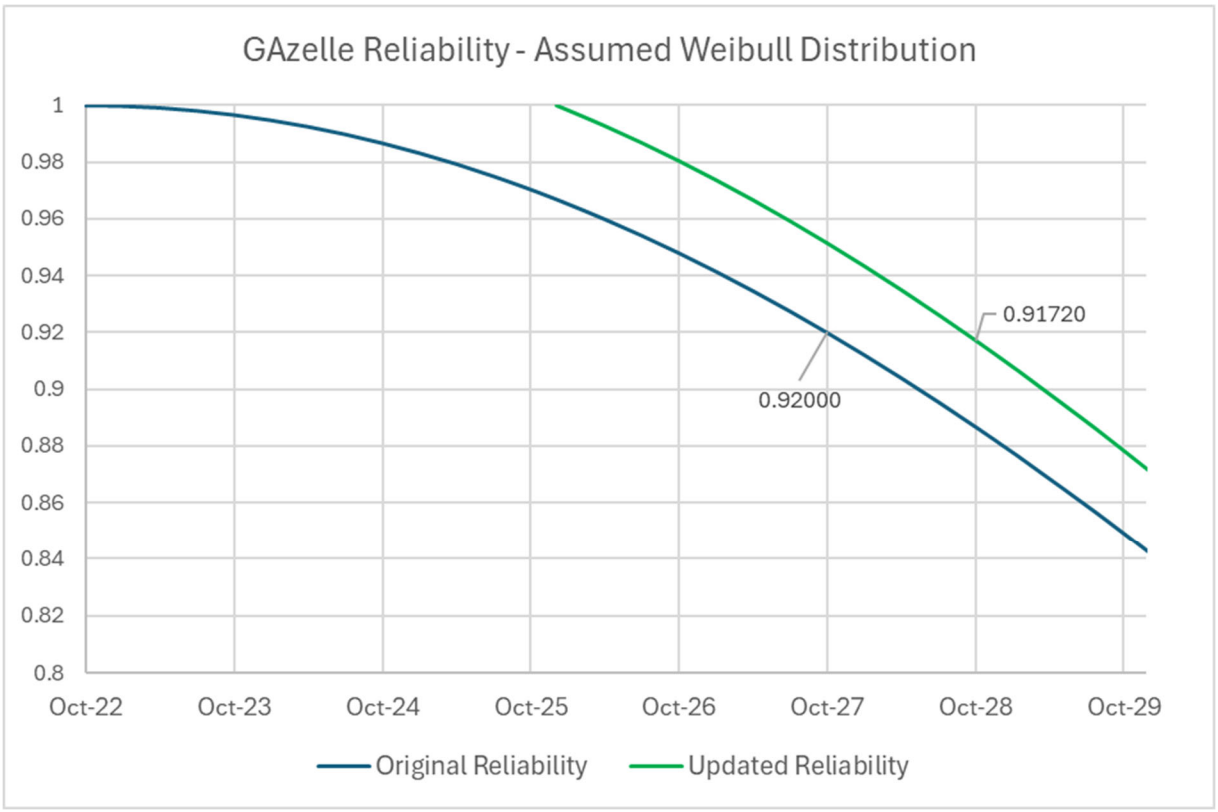
[6] The point value estimate provided by NASA of 0.92 at 5 years does not provide the necessary information to project the satellite's reliability over time based on on-orbit success. General Atomics estimates this value based on a Weibull distribution for spacecraft reliability, an accepted engineering method. *See The Certified Reliability Engineer Handbook, 3rd Edition, Editor Durivage, Mark A., ASQ Quality Press, 2017, at pp. 102*-103 ("The Weibull distribution is widely used in reliability applications"). A Weibull curve accounts for a spacecraft's failure rate changing over time, where a shape parameter > 1 indicates that the failure rate increases over time. This is a valid approximation for a redundant system, which is typically represented by a shape parameter between 1 and 2. The reliability of a redundant system will decrease at a faster rate as time goes on due to loss of redundancy. A greater shape parameter results in reliability decreasing faster over time and provides a lower future reliability prediction. *See Space Mission Engineering: The New SMAD, Editors Wertz, James R, Everett, David F., Puschell, Jeffery J., Microcosm Press, 2011, at pp. 753-754* ("In such [increasing hazard] cases, the Weibull distribution, is used… if [the shape parameter] is greater than 1, then the failure rate increases over time"*)*. Accordingly, a shape parameter of 2 is conversative, and appropriate in this instance.

[7] This value was calculated based on the successful three-year operations of the satellite, as of December 10, 2025.


GAzelle Reliability - Assumed Weibull Distribution
1
0.98
0.96
0.94
0.92
0.9
0.88
0.86
0.84
0.82
0.8
Oct-22
Oct-23
Oct-24
Oct-25
Oct-26
Oct-27
Oct-28
Oct-29
0.91720
0.92000
Original Reliability
Updated Reliability