



**GS Yuasa Lithium-ion Cells
Surpass 2,000,000 Watt-Hours (110 satellites+) On Orbit**

GS Yuasa Corporation (GYC) (Tokyo Stock Exchange: 6674) announced today that it has surpassed 2.0 MWh of lithium-ion energy storage orbited and is projecting to nearly double that figure by the end of 2017. By the end of 2015 GS Yuasa will have over 2.3 MWh of lithium-ion energy storage on orbit.

The space qualified lithium-ion cells are manufactured by GS Yuasa's subsidiary, GS Yuasa Technology, Ltd (GYT). GS Yuasa group companies have been in the battery business for more than a century with lithium-ion cell experience stretching back to the late-1980s. GYT has manufactured lithium-ion cells for use on spacecraft since 1998. Based on the expertise gained through numerous space programs and on-going research and development, GYT introduced the Generation III space qualified lithium-ion cells in 2011. Although Generation II cells have been available for 15 years and remain available today, Generation III cells offer significant performance improvements with only minor modifications limited to the chemistry system. Blending a conservative evolutionary approach to development with industry leading heritage and performance, Generation III cells have been embraced by the marketplace, have flown on human rated missions and represent the vast majority of GYT's space cell backlog.

Highlights of space lithium-ion cell technology:

- Very good energy density
- Low and stable internal resistance
- Excellent capacity retention
- Qualified for space applications
- Wide ranging cell capacity from 42 Ah to 200 Ah

Summary of GS Yuasa space lithium-ion performance in space:

- Industry leading 2.3 MWh of lithium-ion energy storage flown
- More than 110 orbital vehicles powered including human rated missions
- Design life of 15+ years
- Demonstrated mission duration exceeding 10 years
- No on-orbit anomalies or failures

With decades of experience and hundreds of cell-years of performance data, GS Yuasa has developed and validated a life model for space lithium-ion cells which provides highly accurate performance and life predictions across a variety of use cases. GS Yuasa partners with customers to ensure mission success targets are met and optimal cell and battery configurations are considered given each mission's unique value and performance parameters. Customers who choose GS Yuasa lithium-ion cells for space applications enjoy the peace of mind achievable only through industry leading spaceflight heritage and GS Yuasa's teaming approach and commitment to its clients.

[Image] space lithium-ion cells

