

# Design life of lead-acid batteries for base stations

What is the design life of a lead acid battery?

Europe took a different tack. The Eurobat Guide for the Specification of Valve Regulated Lead-Acid Stationary Cells and Batteries defines design life as follows: "The design life is the estimated life determined under laboratory conditions, and is quoted at 20°C using the manufacturer's recommended float voltage conditions." 6

What is a battery design life?

Battery manufacturers design a battery to do certain things within a given set of parameters. This design life is generally predicated on certain conditions that may be generic to the specific application.

How reliable is a stationary lead-acid battery?

IEEE 450 and 1188 prescribe best industry practices for maintaining a lead-acid stationary battery to optimize life to 80% of rated capacity. Thus it is fair to state that the definition for reliability of a stationary lead-acid battery is that it is able to deliver at least 80% of its rated capacity.

How long does a lead-acid battery last?

general rule of thumb for a vented lead-acid battery is that the battery life is halved for every 15°F (8.3°C) above 77°F (25°C). Thus, a battery rated for 5 years of operation under ideal conditions at 77°F (25°C) might only last 2.5 years at 95°F (35°C).

Is a lead-acid battery a good battery?

It is accepted industry practice that a battery is considered "good" or reliable as long as it can deliver  $\geq 80\%$  of its rated capacity<sup>1</sup>. IEEE 450 and 1188 prescribe best industry practices for maintaining a lead-acid stationary battery to optimize life to 80% of rated capacity.

Are there any methods for estimating battery life?

While there is an abundance of literature that provides mapping studies of methods for estimating battery life [11, 12], there is a limited emphasis on SoH and/or RUL estimation methods specifically for lead-acid batteries.

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