

TETRA Health Group

Safety Issues with using Copy or Clone Batteries

Safety and operational issues have been identified with some batteries that have been copied from those supplied by radio manufacturers. Users need to be aware of these issues so that they can make informed decisions.

The problems arise because copy batteries may not have been designed and tested to operate in combination with radios and accessories over the full environmental range and to meet all the stringent quality and safety tests mandated. These extensive certification tests include: shock and vibration, subjection to electrostatic discharge (ESD), temperature variation, humidity, dust and moisture protection; mechanical insertion, electromagnetic compatibility (EMC), specific absorption rate (SAR), acoustic shock, vehicle use (VCA), radiated immunity and radiated emissions, plus a rigorous internal testing regime designed to test each parameter to its limit. The design and construction of batteries, together with thorough testing, means that radio manufacturers are confident that the charging and safety protection circuitry will operate as expected in every scenario.

Each radio, battery, and accessory combination complies with all relevant health and safety regulations. Combinations of products that are not properly certified could pose serious health and safety risks to the user, other parties and also property, as well as negatively impacting the performance of the radio.

The specific issues found by manufacturers when evaluating copy batteries include:-

- Incorrect charge data – the copy battery has copied the data for just one temperature. Charging whilst the battery cell is hotter or colder than this temperature could damage the cell causing issues such as swelling of the pack, leading to a discharge of chemicals. Charging outside the prescribed cell temperature range can also cause the battery life to be significantly shortened.
- Internal fuse can be re-set and has a wide trip point tolerance – this can allow damage to the battery and a faulty battery pack to be re-enabled without the fault condition being resolved.
- Fails drop test – the design is not as robust.
- Shorter life – specified number of charge cycles over the life of the battery is significantly less.
- Lack of traceability – copies can extend to the serial number of the product being copied such that batches of batteries may all share only a few different serial numbers.

In addition unless copy batteries have been tested with radios to comply with the EMC requirements against the ETSI standards EN 301 489 -1&18, the safety standard EN 60950-1, and SAR tested to comply with EN 50360, they will invalidate the CE marking of the radio.
