

Wal-Mart will utilize this FCC experimental site license for radio frequency identification (RFID) research at its lab in Bentonville, Arkansas. This research will build upon the work that has previously been conducted in the lab using the North American based RFID reader standards and frequencies. These readers currently operate under part 15 of the FCC regulations (1 Watt max output, 902MHz – 928Mhz Spread Spectrum Frequency Hopping). The research is to be based on supply chain applications utilizing RFID readers at strategic locations within our supply chain and optimal placement of RFID tags on cases, pallets and assets utilizing frequency ranges currently being used overseas. The need for the site license is to continue to research and develop a deployment strategy for RFID solutions for our global subsidiaries throughout Europe and the Asia Pacific and the resulting impact on the domestic side of the logistics operations. The varying frequency levels and power limits allowed in each respective region will have an affect on the RFID reader/tag communication performance across the other regions.

The experimentation will include RFID tagged cases going through a simulated dock door outfitted with RFID portals on each side. This will include testing in a dense reader mode environment (up to 26 different RFID readers in a 1000 square foot area). Additional testing will be conducted using RFID enabled handhelds for inventory collection, product locating and product receiving in a simulated store environment. RFID readers fixed to mobile assets (forklifts, carts, wearable devices) will be tested using this site license to ensure that solutions developed using RFID readers in the United States will meet the given performance criteria across all other regions worldwide within which Wal-Mart operates.

The configurations of the radio will continually be optimized to ensure acceptable performance across varying frequency bands and power levels. The goal of this research and testing is to ensure an RFID solution developed in the United States can be deployed globally, finding the optimal placements of the tags and readers. In addition, Wal-Mart wants to ensure that an RFID tag applied from a manufacturer in Japan or the United Kingdom will perform in the United States (and vice versa). In an ideal research situation we would like to be licensed to operate unrestricted in the frequency range between 800 and 1000 MHz with power levels up to 8 watts to operate in conjunction with research lab located at the University of Arkansas, Fayetteville campus.

This research has promise to show whether multiple classes of tags can exist within the network architecture and still be effective to implement the various aspects of supply chain management in a truly global distribution system.