



ThingMagic, LLC  
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September 30th, 2004

Federal Communications Commission  
Authorization and Evaluation Division  
7435 Oakland Mills Road  
Columbia, MD 21046

Dear Sir or Madam:

ThingMagic LLC, located at One Broadway in Cambridge, MA, hereby requests certification for the Mercury4 RFID reader [FCC ID: QV5MERCURY4] as set forth in the Federal Communication Commission's Rules and Regulations, Part 2 and 15.

The Mercury4 is a RFID reader operating in the 902-928 MHz bands under the rules provided for frequency-hopping spread spectrum transmitters found in 47 CFR 15.247.

The Mercury4 currently operates solely with six models of antennas: ThingMagic, Sensormatic, Matrics, M/A-Com, and two versions from Alien. All of these antennas have a gain of less than 6 dB and are described in the test report and installation manual. In addition, two lengths of antenna cables are used. No combination of antenna and cable will result in radiated power in excess of requirements described in the regulations. Detailed instructions for setting power to the correct level during installation are included in the manual.

The Mercury4 does not transmit simultaneously on the accessible ports. The antenna port in use is selected one-at-a-time by a multiplexing switch from a single transmitter/receiver.

When reading tags the Mercury4 is always transmitting data to command the tags in to various operating modes. The tags do not respond until they receive a valid command from the reader, so the reader must always be transmitting data to elicit a tag response. The different RFID protocols handle the commands and responses somewhat differently, but this basic fact is common to all RFID protocols that we support with this device.

The carrier of the Mercury4 is always modulated with data that is communicated with the tags. There are brief periods between commands in which no data is transmitted (as the next piece of data is being computed) but this is a negligible fraction of the overall time that the reader's carrier is on.

The Mercury4's transmit and receive bandwidths are defined by the DSP based filters. The receiving filters track the operating bandwidth of the transmitted signal although several different data rates are employed with commensurate pairs of filters.

There is no transmission of useless information. All transmissions are used to read and/or write the passive tag, either directly in the form of data to be stored in the tag, or in the form of commands to the tags that are used to address the tags to make them respond one at a time.



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In signing this letter, ThingMagic LLC certifies that, in the case of an individual applicant, he or she is not subject to a denial of federal benefits. That includes: FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 853(a). Or, in the case of a non-individual applicant, no party to the application is subject to a denial of federal benefits that includes FCC benefits, pursuant to that section. For the definition of “party” for these purposes, please refer to 47 CFR 1.2002(b).

Sincerely,

Bernd Schoner  
Managing Partner