

FCC ID:2ALHYBIORADRDR0200,ISED-C, IC ID: 22592- BIORADRDR02 .

-Overview of Operation-

This product is a dedicated ISO14443A RFID transponder read/write device designed specifically for Bio-Rad Digital Biology Group of Pleasanton California, USA for use exclusively in their medical specimen analysis instruments.

Its purpose is to read data from and write data to a 30mm x 15mm PVC/PET encapsulated Ntag216 transponder tag, which is located in alignment and close proximity to the integral board antenna (between 0mm and 20mm separation distance). This is done on the reader using the NXP Semiconductor Integrated Circuit Chip, MFRC52202. This is a dedicated RFID/NFC transceiver chip that communicates using close-proximity magnetic induction and the ISO14443A standard RFID protocol. An integral printed circuit board (PCB) antenna is used along with filtering and tuning fixed miniature surface mounted passive electronic components to radiate an alternating magnetic field at 13.56MHz for magnetic coupling with a transponder device that is tuned to the same frequency and operating using the same ISO14443A protocol and when this is within a range of 20mm from the PCB antenna.

Any electric field radiated is shielded from gaining entry outside of the product by using shielded inductor products in the bill of materials, filtering and smoothing circuits and ground plane shielding in the internal layers of the PCB. These features enable the product to comply with various regulatory emissions standards worldwide such as those specified by the Federal Communication Commission (FCC) in the USA (FCC Part15 C), ISED Canada (RSS210) and the European Community (CE).

The board provides a digital communication interface to the host machine via a Molex 70553-0038 connector. This interface conforms to the industry standard I²C communication protocol. (For detailed information on this protocol see publications by NXP (Philips) Semiconductor, the originator of this standard.)

The Bio-Rad host instrument requests of the product the actions of reading a transponder or writing to a transponder by sending to it commands over the I²C serial bus. These commands are covered in detail

in the User Manual of the product. The board has fixed radio frequency output (RF) setup and can't be altered in any way by user instruction from the available commands. Therefore, unless the user wilfully alters the antenna circuitry of the board, it will perform in a fixed manner, from an RF perspective, compatible with the board specimens provided for regulatory testing approvals and certification by the various worldwide authorities. The board is not "user adjustable or configurable" for RF performance.

Photograph Depicting Electrical Connection and showing the Fixed Design of the Product

