

Theory of Operation/Technical Description for Transceiver Module FCC ID: WCH99956035

The EUT (Equipment Under Test) is the Transceiver Module inside the power supply for a pool cleaning robot.

The module in the power supply can turn on the robot automatically using a scheduled timer.

4 pushbuttons and an icon based LED display are used for the MMI (Man Machine Interface).

The transceiver module is based on a single chip CC2541 (designation U4) from TI that connects to a Smartphone using BLE (Bluetooth Low Energy V4.0) communication for sending and receiving commands to control the robot.

The RF output transmitting power of the transceiver (U4 – CC2541) is 0dBm and the gain of the built-in non detachable inverted F antenna (printed on the PCB and non-detachable) is 0dB.

The transceiver uses GFSK modulation on 40 channels in adaptive frequency hopping starting from 2402MHz up to 2480MHz with 1.95MHz spacing following the Bluetooth V4.0 compliant protocol.

An internal backup battery is used for the Real Time Clock to operate while the power supply is disconnected from the outlet.

The CC2541 IC (the BLE transceiver chip) is using a Crystal oscillator of 32MHz providing the main Clock and a 32.768 KHz for a real time clock feature.