# Operational Description

## Device Description

The 2hire box 2.0 enables vehicle connectivity and, with the support of the 2hire Adapter API layer, allows the exchange of data and commands with software platforms. The use of the 2hire box 2.0 can range from simple data reading in telematics to the creation of digital services dedicated to vehicles for the fleet sector (e.g. rentals, car sharing, etc.).

The 2hire box 2.0 embeds the following radio module (already approved by FCC):

- Bluetooth Internet of Things Module (FCC ID: 2BDMD-2HBM2), with an integral antenna as per original radio module
  <u>Important remark</u>: the original radio module also implements WiFi operating mode; this functionality has been disabled by the final product firmware.

- Quectel EG21-G as 2G/3G/4G Module (FCC ID: XMR201906EG21G), with 2 x Quectel YF0022AA antennas, one to support transmission and one for Rx diversity.

## Quectel YF0022AA antenna specifications

**Antenna Gain (see § 4.4. Gain of the YF0022AA antenna datasheet, Version: 1.0, Date: 2020-12-08)**

| Frequency | Gain |
|---|---|
| GSM850 (824 to 849 MHz) | 1.7 - 2.8 dBi |
| GSM1900 (1850 to 1910 MHz) | 2.7 - 4.0 dBi |
| WCDMA BAND II (1850 to 1910 MHz) | 2.7 - 4.0 dBi |
| WCDMA BAND IV (1710 to 1755 MHz) | 3.8 - 4.5 dBi |
| WCDMA BAND V (824 to 849 MHz) | 1.7 - 2.8 dBi |
| LTE BAND 2 (1850 to 1910 MHz) | 2.7 - 4.0 dBi |
| LTE BAND 4 (1710 to 1755 MHz) | 3.8 - 4.5 dBi |
| LTE BAND 5 (824 to 849 MHz) | 1.7 - 2.8 dBi |
| LTE BAND 7 (2500 to 2570 MHz) | 3.9 - 5.3 dBi |
| LTE BAND 12 (699 to 716 MHz) | 1.3 - 1.6 dBi |
| LTE BAND 13 (777 to 787 MHz) | 2.8 - 3.0 dBi |
| LTE BAND 25 (1850 to 1915 MHz) | 2.7 - 4.0 dBi |
| LTE BAND 26 (814 to 849 MHz) | 1.7 - 3.5 dBi |
| LTE BAND 38 (2570 to 2620 MHz) | 4.5 - 5.3 dBi |
| LTE BAND 41 (2500 to 2690 MHz) | 3.9 - 5.3 dBi |

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2hire srl – Via Mantova, 52 – 00198 Roma – Mobile (+39)333 7507719
info@2hire.io – 2hire@pec.it – www.2hire.io
P.IVA e C.F. 13277841006 – C.C.I.A.A. di Roma R.E.A. n. 143512