test emphasized that to get more data collection rate, R should be higher and $T_{RF}$ should be less than 2 ms.

Table 2: Collected Data Levels for 2 Ms Transaction

| $T_{RF}$=2 ms | | Data Transmission Rates (bps) | | | | |
|---|---|---|---|---|---|---|
| | | 110 | 300 | 600 | 1200 | 2400 |
| n=72 bytes | Data Collection Rates (bps) | 8 | 19 | 39 | 76 | 150 |
| n=1 byte | | 5 | 15 | 30 | 56 | 100 |

At the design phase, some problems are encountered. For example, finding a functional support for RSSI measurement is one of them. By supporting a scanning algorithm, RSSI measurements are recorded. On the other hand, importance of the programming is clearly observed. Another problem is to match different data structures between the transceiver and the micro-processor. To arrange some specific packets so as to provide ideal tagging and control algorithm is the major difficulty. Antenna and RF module placements helped us to avoid some obstacles while testing. Nevertheless, the path losses are inevitable.

In this study, development of a wireless transmission module and its performance tests are presented. Test results are showed that the performance of the module is 450 m for NLOS point-to-point range and 2 km for LOS long range. In the light of our experiences, the base board is designed and produced. This board meets general requirements such as, small data transferring, medium range communication, easy mounting and cable connection. Our two-way wireless transmission system is capable of retrieving data from a large number of devices with accuracy in a period of time as short as possible. Our system can be customized to different applications, like remote data monitoring and control and operated fixed location remote units. Proposed the low-power and low-cost wireless transmission system can be further developed for commercial purposes. However, for the end-users, its performance has to be improved and stable operation should be achieved.

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