Low-Energy Bluetooth RF Testing Using BlueTool

Associated Part Family: CYW20738

This document contains detailed information on using BlueTool to perform RF testing on Bluetooth Low Energy (BLE) devices.

1 Introduction

This document contains detailed information on using BlueTool to perform RF testing on Bluetooth Low Energy (BLE) devices.

1.1 Cypress Part Numbering Scheme

Cypress is converting the acquired IoT part numbers from Broadcom to the Cypress part numbering scheme. Due to this conversion, there is no change in form, fit, or function as a result of offering the device with Cypress part number marking. The table provides Cypress ordering part number that matches an existing IoT part number.

Table 1. Mapping Table for Part Number between Broadcom and Cypress

<table>
<thead>
<tr>
<th>Broadcom Part Number</th>
<th>Cypress Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCM20738</td>
<td>CYW20738</td>
</tr>
</tbody>
</table>

1.2 Acronyms and Abbreviations

In most cases, acronyms and abbreviations are defined upon first use. For a more complete list of acronyms and other terms used in Cypress documents, go to: http://www.cypress.com/glossary.

2 IoT Resources

Cypress provides a wealth of data at http://www.cypress.com/internet-things-iot to help you to select the right IoT device for your design, and quickly and effectively integrate the device into your design. Cypress provides customer access to a wide range of information, including technical documentation, schematic diagrams, product bill of materials, PCB layout information, and software updates. Customers can acquire technical documentation and software from the Cypress Support Community website (http://community.cypress.com/).
3 Low-Energy RF Testing

3.1 Performing a Low-Energy Transmit Test

1. Under HCI Control, select 7.3: Host Controller & Baseband Commands (3 key), and then double-click Reset to reset the DUT.

2. Select 7.8: LE Controller Commands (8 key), and then double-click LE_Transmitter_Test.

3. In HCI Command: LE_Receiver_Test window, enter the channel number (k) as indicated by TX_Channel (0-39; (F=2402+[k*2MHz])).
4. Enter number of bytes (37) per packet as indicated by Length_of_Test_Data (0-37).
5. In the Packet_Payload field, select the packet type.
6. Click OK.
   The tester analyzes the data, and then outputs the results.
7. Repeat Step 1 through Step 6 to make the next transmit test measurement.
3.2 Perform a Low-Energy Receive Test

1. Under HCI Control, select 7.3: Host Controller & Baseband Commands (3 key), and then double-click Reset to reset the DUT.

2. Select 7.8: LE Controller Commands (8 key), and then double-click select LE_Receiver_Test.

3. Enter the channel number (k) as indicated by TX_Channel (0-39; (F=2402+[k*2MHz])).

4. Click OK.

   Note: Make sure the tester transmits the number of packets (1500 packets as specified) and the level appropriately.

5. After the test completes the transmission, under HCI Control, select 7.8: LE Controller Commands (8 key), and then double-click LE_Test_End.

   The number of good packets received is reported in the log window.
6. Repeat **Step 1** through **Step 5** to make the next receive test measurement.
# Document History Page

**Document Title:** AN214890 - Low-Energy Bluetooth RF Testing Using BlueTool  
**Document Number:** 002-14890

<table>
<thead>
<tr>
<th>Rev.</th>
<th>ECN No.</th>
<th>Orig. of Change</th>
<th>Submission Date</th>
<th>Description of Change</th>
</tr>
</thead>
</table>
| **   | -       | -              | 03/18/2014      | 20738-AN300-R  
Initial release                          |
| *A   | 5452409 | UTSV           | 09/28/2016      | Updated in Cypress template                |
| *B   | 5824556 | AESATMP8       | 07/19/2017      | Updated logo and Copyright.                |
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