AN214777

Bluetooth Qualification Body Radio Frequency Test Setup

Associated Part Family: CYW20704

This document outlines the procedure to enable the CYW20704 in test mode for Bluetooth qualification body (BQB) radio frequency (RF) testing using a Bluetooth tester.

1 Overview

This document outlines the procedure to enable the CYW20704 in test mode for Bluetooth qualification body (BQB) radio frequency (RF) testing using a Bluetooth tester.

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

Broadcom Part Number	Cypress Part Number
BCM20704	CYW20704

1.2 Acronyms and Abbreviations

In most cases, acronyms and abbreviations are defined on first use.

For a comprehensive list of acronyms and other terms used in Cypress documents, go to: http://www.cypress.com/glossary.

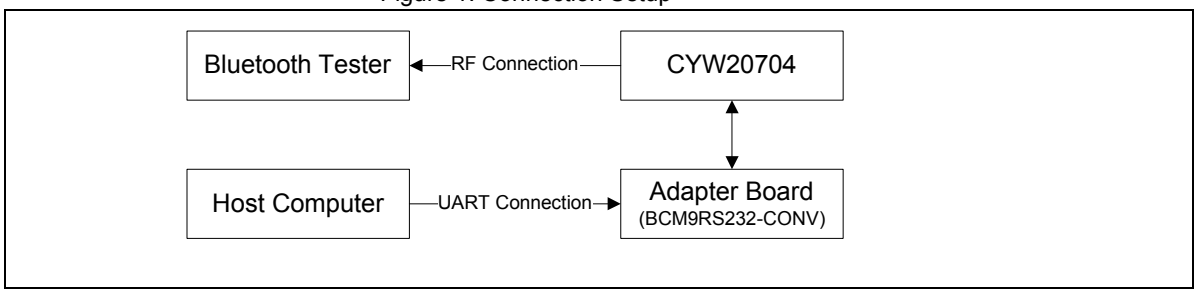
2 IoT Resources

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 Hardware Setup

1. Connect the device under test (CYW20704) to the serial adapter board (BCM9RS232-CONV) with a 6-wire cable (see Figure 1). If using the USB transport, the adapter board is not required. In this case, connect the CYW20704 directly to the PC's USB port.
2. If using the USB transport, skip this step. Connect the serial adapter board to the PC with a serial cable.
3. If using the USB transport, skip this step. Power up the serial adapter board.
4. Connect the CYW20704 to a Bluetooth tester with a coaxial RF cable.

Figure 1. Connection Setup



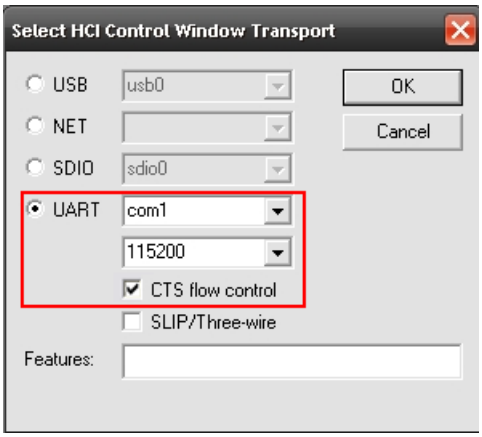
4 BlueTool™ Setup

BlueTool™ has an integrated Perl module that provides an interface to automate the use of Perl scripts.

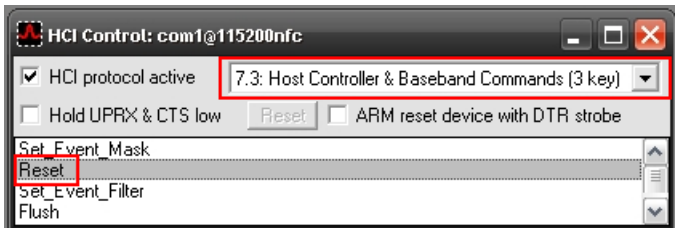
ActivePerl 5.8.4 (or newer) *must* be installed before Bluetool is installed.

ActivePerl can be downloaded for free at www.activestate.com/activeperl/.

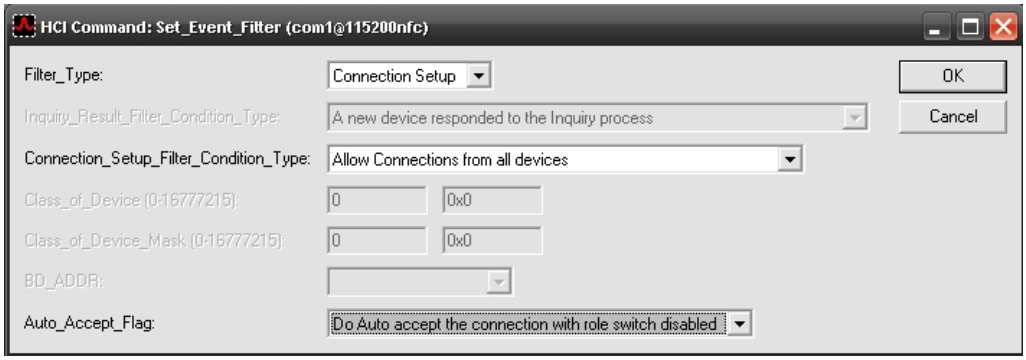
1. Open BlueTool and then:
   a. From the **View** menu, select **Log Window**.
   b. From the **Transport** menu, select **HCI Control**.
2. In the HCI Control Window Transport window select **UART**, set the COM port to **com1** and the baud rate to **115200**. Verify that CTS flow control is checked, and then click **OK**. If using the USB transport, select the USB option and select the correct USB port, and then click **OK**.



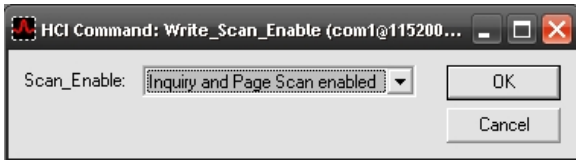
3. In the HCI Control Command window (**BlueTool > Transport > HCI Control**):
   a. Select **7.3: Host Controller & Baseband Command**.
   b. In the main body of the window, double-click **Reset**.
   c. In the log window, verify that the next-to-last entry echoes the correct command and that the last line reads Status = 0x0 (0, “Success”).
   d. In the main body of the window, double-click **Set_Event_Filter**.



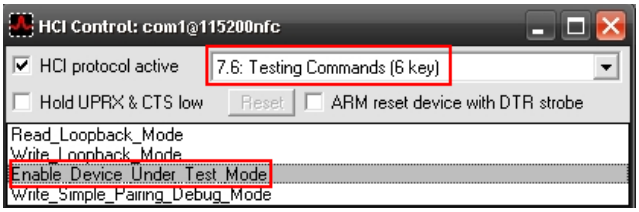
4. In the Set Event Filter window, make these selections:
   a. Select Filter Type: **Connection Setup**.
   b. Select Connection Setup Filter Condition Type: **Allow Connection from all devices**.
   c. Select Auto Accept Flag: **Do Auto accept the connection with role switch disabled**.
   d. Click **OK**.
   e. In the log window, verify that the next-to-last entry echoes the correct command and that the last line reads Status = 0x0 (0, “Success”).



5. In the HCI Control Command window (**BlueTool > Transport > HCI Control**), double-click **Write Scan Enable**.
6. In the Write Scan Enable window:
   a. From the Scan_Enable shortcut list, select **Inquiry and Page Scan enabled**.
   b. In the log window, verify that the next-to-last entry echoes the correct command and that the last line reads Status = 0x0 (0, “Success”).



7. In the HCI Control Command window (**BlueTool > Transport > HCI Control**):
   a. Select **7.6: Test Commands**.
   b. Double-click **Enable_Device_Under_Test_Mode** and click **OK**.
   c. In the log window, verify that the next-to-last entry echoes the correct command and that the last line reads Status = 0x0 (0, “Success”).



The device is now in test mode.

Document History

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Rev.	**ECN No.**	**Orig. of Change**	**Submission Date**	**Description of Change**
**	–	UTSV	05/20/2015	20704-AN300-R: Initial release
*A	5451069	UTSV	09/28/2016	Updated to Cypress template
*B	5867967	AESATMP8	08/30/2017	Updated logo and Copyright.

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