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Client: Motorola Inc. CHS
Model: Blue Nile OEM
Standards: FCC 15.247 & RSS-210
FCC ID/IC: ACQBLUENILE/3231A-BLUENILE
Report #:   2007108

Appendix K: User Manual

Please refer to the following pages for the OEM Application Guide and Warranty, Safety and Regulatory information.

Blue Nile OEM Application Guide

Document Nbr

Version 0.1

Date 11/29/2006

Revision History:

Date	Version	Author	Description
11/29/06	0.1	hblarson	Initial draft

Table of Contents

Introduction

This document describes how to set up the Blue Nile OEM board for bench testing.

Abbreviations and Acronyms

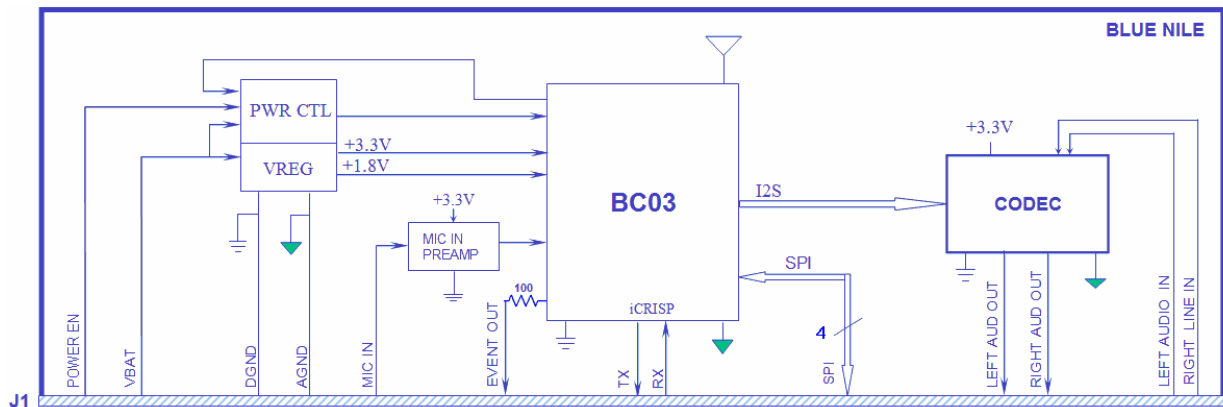| Acronym	Description
BC03	BlueCore™3
BGA	Ball Grid Array
CAT5	Category 5
CODEC	Coder/Decoder
CSR	Cambridge Silicon Radio
DAC	Digital to Analog Converter
DC	Direct Current
DUT	Device Under Test
GPIB	General Purpose Interface Bus
HLD	High Level Design
I^2S	Inter-IC Sound
IC	Integrated Circuit
MIC	Microphone
PS Key	Persistent Store Key
RF	Radio Frequency
SPI	Serial Peripheral Interface
WACA	Wireless Audio Car Adapter

Table 1. Abbreviations and Acronyms

Figure 1. Blue Nile Block Diagram

Test Procedures

DC Power Requirements

Specifications	Units of Specification	Nominal	Lower Limit	Upper Limit
Operating Voltage	VDC	13.5	10	16

Table 2. Power Supply Specifications

Test Set Up and Sample Preparation

Downloading the BlueCore™3 firmware

Firmware is downloaded to the BC03 using a SPI connection from the computer parallel port through the Blue Nile test fixture to SPI pins on the DUT interface connector.

1. Make the connections as described in **Figure 1**.

2. Start CSR BlueFlash application

   a. Choose LPT1 as output port.
   b. Depress **Choose File** and navigate to the location of the firmware download file.
   c. Depress **Stop Processor**. **Download** should become active.
   d. Depress **Download**

3. The firmware download will run automatically.

4. When download is done Depress **Start Processor**.

Trimming the BlueCore™3 carrier frequency

The carrier frequency will be trimmed at center band for minimum error. The maximum error must be less than ± 10 KHz.

1. Make the connections as described in **Figure 1**.

2. Start the BlueTest3 application.

   a. Choose SPI Transport
   b. Choose LPT1 Port
   c. Depress **Ok**

3. LPT1 should open successfully.

4. Select **TXSTART** in the **RF Test Mode** window

   a. Set LO Frequency to 2441 MHz.
   b. Depress Execute.
   c. Select **CFG XTAL FTRIM** in the RF Test Mode window.
   d. Depress Execute.

5. Measure the RF carrier frequency using the RF Counter mode of a spectrum analyzer. Note whether the frequency is out of tolerance high or low. If the carrier frequency is within tolerance, proceed to Step 7. Otherwise, proceed to Step 6.

6. If the measured carrier frequency is out of tolerance

   a. If the measured frequency is low, decrease the value in the **Crystal Trim (hex)** window.
   b. If the measured frequency is high, increase the value in the **Crystal Trim (hex)** window.
   c. Depress **Execute**.
   d. Return to Step 5.

7. Open the PSTool application. Store the crystal trim value determined in Step 5 in PS Key 502 (PSKEY_ANA_FTRIM).

Operating the Blue Nile OEM module

1. Connect the equipment as shown in Figure 2.
2. Open the PSTool application.
3. In the `Filter` window, type the string: `User Configuration Data`
4. Scroll down and select `User Configuration Data 7`
5. The value of the PSKEY for `User Configuration Data 7` will be displayed in the box on the upper right part of the display.
6. If the value displayed for the PSKEY is `0000 0000`, change the display to `1` and depress the `SET` button.
7. Depress `BC Reset` button.
8. The DUT will now be in Test Mode.

Test Equipment

Test Equipment List

General Test Equipment

1. Spectrum analyzer (frequency trim only)
2. Desktop computer with Windows installed
3. Bluetooth RF test system
4. MMCX-SMA adapter
5. 12V DC power supply
6. Blue Nile test fixture
7. CAT5 cable
8. DB25-RJ45 adapter
9. Windows Media Player application software or equivalent
10. PSTools application program from CSR BlueSuite
11. BlueTest application program from CSR BlueSuite (frequency trim only)

BlueCore™3 Firmware Download

1. DB25-RJ45 adapter
2. CAT5 cable
3. Blue Nile test fixture
4. CSR BlueFlash application software from CSR BlueSuite

Test Equipment Setup

BlueCore™3 Flash Download and Carrier Frequency Trim Setup

1. Connect the equipment as shown in **Figure 1**.

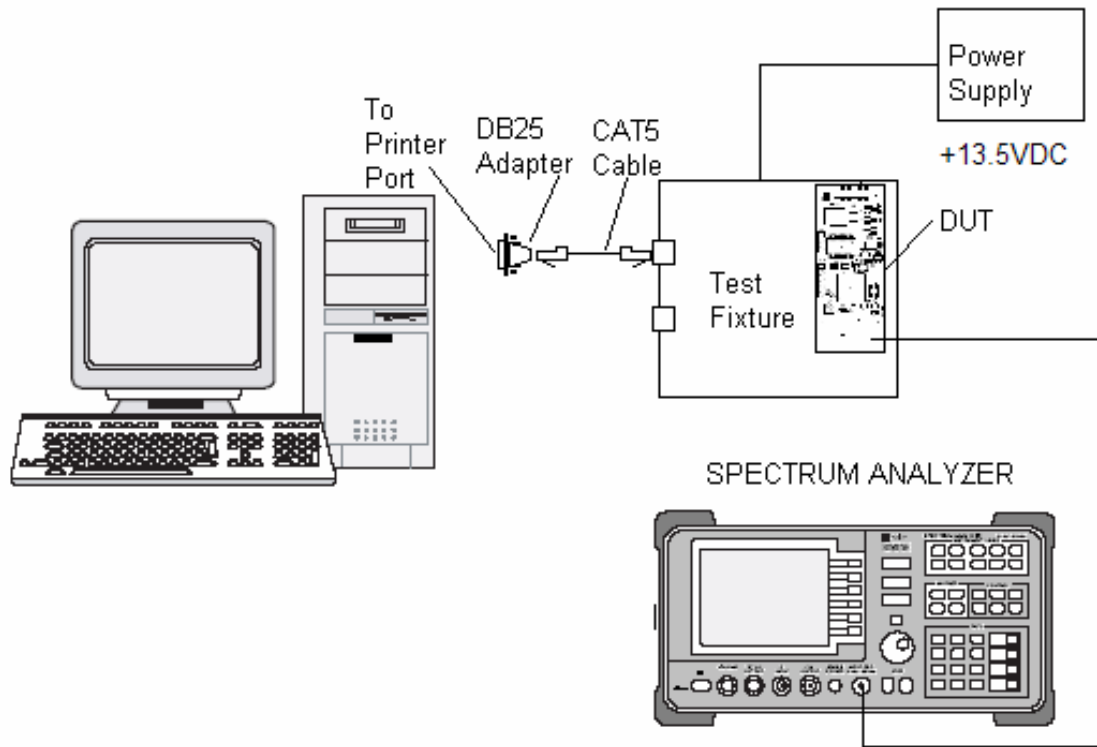2. For carrier frequency trim, connect spectrum analyzer as shown.

Figure 1.   BlueCore™3 Flash Download and Carrier Frequency Trim Setup

Blue Nile Operational Setup

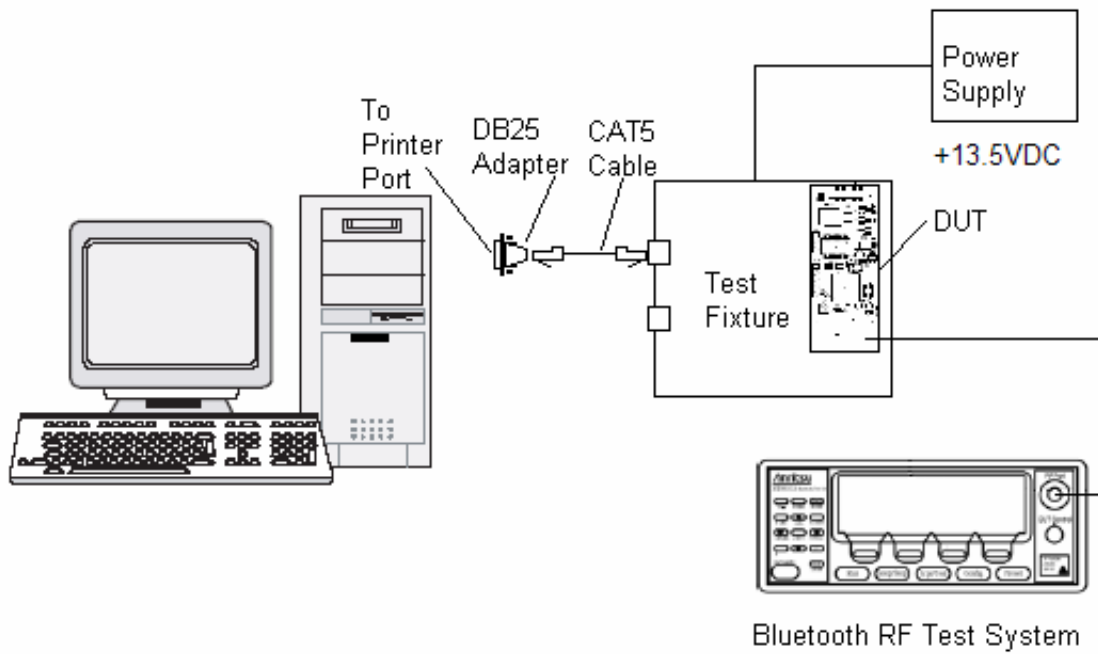Connect the Blue Nile as shown in Figure 2 for operational testing.

Figure 2. Blue Nile operational test setup.

DUT I/O Signal List

Pin	Signal Name		Pin	Signal Name	
1	MIC IN	I	**2**	VBAT	I
3	DGND	I	**4**	DGND	I
5	iCRISP TX	O	**6**	POWER ENABLE	I
7	iCRISP RX	I	**8**	EVENT OUT	O
9	DGND	I	**10**	DGND	I
11	SPI CSB	I	**12**	SPI MISO	O
13	SPI CLK	I	**14**	SPI MOSI	I
15	AGND	I	**16**	AGND	I
17	RIGHT AUDIO OUT	O	**18**	LEFT LINE INPUT	I
19	LEFT AUDIO OUT	O	**20**	RIGHT LINE INPUT	I

Table 3. DUT I/O Signal List

DB25 Adapter Pin Assignments

DB25	RJ45	Signal Name
2	1	Chip Select
5	2	
10	3	MISO
4	4	
8	5	MOSI
3	6	
9	7	CLK
25	8	GND

Table 4. DB25 Pin Assignments

Warranty, Safety and Regulatory Information
iRadio® Blue Nile Wireless Audio Car Adapter

Limited Warranty

Wireless Audio Car Adapter ("Product")

Motorola warrants to you, the original end user customer, that the Product will be materially free from defects in materials and workmanship under normal use for a period of one (1) year from the date of purchase from Motorola or from an authorized reseller. To take advantage of this Limited Warranty please call Motorola at 1-866-289-6686 within the warranty period. Motorola's sole and exclusive obligation under this Limited Warranty shall be to repair or replace any Product that does not meet this Limited Warranty. All warranty claims must be made within the applicable Warranty Period.

The Limited Warranty shall not apply: (i) to any Product subjected to accident, misuse, neglect, alteration, Acts of God, improper handling, improper transport, improper storage, improper use or application, improper installation, improper testing or unauthorized repair; or (ii) to cosmetic problems or defects which result from normal wear and tear under ordinary use, and do not affect the performance or use of the Product. Motorola's warranties apply only to a Product that is manufactured by Motorola and identified by Motorola owned trademark, trade name or product identification logos affixed to the Product. THERE ARE NO WARRANTIES OF ANY KIND RELATING TO THE PRODUCT, EXPRESS, IMPLIED OR STATUTORY, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR THE WARRANTY AGAINST INFRINGEMENT PROVIDED IN THE UNIFORM COMMERCIAL CODE. Some states do not allow for the exclusion of implied warranties, so the above exclusion may not apply to you.

If you are purchasing the Product as a consumer then nothing in this limited warranty affects or limits any of your statutory rights as a consumer.

While every reasonable effort has been made to ensure that you will receive a Product that you can use and enjoy, Motorola does not warrant that the functions of the Product will meet your requirements or that the operation of the Product will be uninterrupted or error-free. MOTOROLA IS NOT RESPONSIBLE FOR PROBLEMS OR DAMAGE CAUSED BY THE INTERACTION OF THE PRODUCT WITH ANY OTHER SOFTWARE OR HARDWARE. ALL WARRANTIES ARE VOID IF THE PRODUCT IS OPENED, ALTERED, AND/OR DAMAGED.

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IN NO EVENT SHALL MOTOROLA BE LIABLE TO YOU OR ANY OTHER PARTY FOR ANY DIRECT, INDIRECT, GENERAL, SPECIAL, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR OTHER DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR INJURY, LOSS OF PROPERTY, BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF INFORMATION OR ANY OTHER PECUNIARY LOSS), OR FROM ANY BREACH OF WARRANTY, EVEN IF MOTOROLA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. IN NO CASE SHALL MOTOROLA'S LIABILITY EXCEED THE AMOUNT YOU PAID FOR THE PRODUCT

These matters are governed by the laws of the Commonwealth of Pennsylvania, without regard to conflict of laws principles and excluding the provisions of the United Nations Convention on Contracts for the International Sale of Goods.

FCC ID: ACQBLUENILE
IC: 3231A-BLUENILE

FCC Compliance Part 15

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

--Reorient or relocate the receiving antenna.

--Increase the separation between the equipment and receiver.

--Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

--Consult the dealer or an experienced radio/TV technician for help.

Caution: Changes or modifications not expressly approved by the responsible party for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Declaration of Conformity

Motorola Inc., Connected Home Solutions, 101 Tournament Drive, Horsham,PA 19044, 1-215-323-1000, declares that the Blue Nile OEM Wireless Audio Car Adapter and its associated models complies with 47 CFR Parts 2 and 15 of the FCC rules as a Class B digital device.

FCC Certification

This Product contains a radio transmitter and accordingly has been certified as compliant with 47 CFR Part 15 of the FCC Rules for intentional radiators. Products that contain a radio transmitter are labeled with FCC ID and the FCC logo.