

# AT&T Entertainment Group

## CGW450 Built-In Self-Test User Guide for USB-SERIAL (DATA PORT)

October 14, 2022  
v2.13



**Premium, effortless entertainment  
experience delivered anywhere**



## Copyrights and Trademarks

---

© 2017-2022 AT&T Intellectual Property. All rights reserved.

© 2016 ARRIS Enterprises LLC. All rights reserved.

No part of this publication may be reproduced in any form or by any means or used to make any derivative work (such as translation, transformation, or adaptation) without written permission from AT&T Intellectual Property and ARRIS Enterprises LLC.

ARRIS is a registered trademark of ARRIS Enterprises LLC.

AT&T and Globe logo are registered trademarks of AT&T Intellectual Property.

All other marks are the property of their respective owners.

This material in this document is provided without warranty of any kind, implied or expressed, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

The capabilities, system requirements and/or compatibility with third-party products described herein are subject to change without notice.

# Table of Contents

---

|            |                                               |           |
|------------|-----------------------------------------------|-----------|
| Chapter 1: | <b>INTRODUCTION</b>                           | <b>1</b>  |
|            | 1.1 OBJECTIVES                                | 1         |
|            | 1.2 BIST TEST COMMANDS FOR CGW450             | 1         |
|            | 1.3 BIST OPERATIONAL MODES                    | 2         |
|            | 1.3.1 BIST Special Mode                       | 2         |
|            | 1.3.2 BIST Normal Mode                        | 2         |
|            | 1.3.3 BIST Commands Matrix                    | 2         |
| Chapter 2: | <b>INITIAL SETUP FOR BIST TESTING</b>         | <b>7</b>  |
|            | 2.1.1 BIST Limited Mode                       | 9         |
| Chapter 3: | <b>BIST APPLICATION</b>                       | <b>9</b>  |
|            | 3.1 PRE-REQUISITES                            | 9         |
|            | 3.1.1 CGW450 Debug Console Setup              | 9         |
|            | 3.2 BIST SERVER AND DATA PORT APPLICATION     | 10        |
|            | 3.3 BIST CLIENT APPLICATION                   | 11        |
|            | 3.3.1 Start the BIST Client using run_bist.sh | 12        |
|            | 3.3.2 BIST Normal Mode                        | 14        |
|            | 3.3.3 BIST Special Mode                       | 15        |
|            | 3.3.4 BIST Limited Mode                       | 15        |
|            | 3.3.4.1 Flash Update                          | 16        |
|            | 3.3.4.2 Secure Type Get Commands              | 17        |
|            | 3.3.4.3 JTAG/OTP lock status Get Commands     | 17        |
|            | 3.3.4.4 Cellular Device Information           | 17        |
|            | 3.4 BIST RUN LEVELS                           | 17        |
|            | 3.4.1 Run All Tests                           | 17        |
|            | 3.4.2 Run Individual Tests                    | 17        |
| Chapter 4: | <b>BIST MENU BASED TEST COMMANDS</b>          | <b>19</b> |
|            | 4.1 BOX TEST COMMANDS                         | 19        |
|            | 4.1.1 boxCapAVS                               | 20        |
|            | 4.1.2 boxGetAVSVoltage                        | 21        |
|            | 4.1.3 boxGetCPUUsage                          | 22        |
|            | 4.1.4 boxReboot                               | 22        |
|            | 4.1.5 Get BIST Version Test                   | 23        |
|            | 4.1.6 Get Model Test                          | 24        |
|            | 4.1.7 Run All box Tests                       | 24        |
|            | 4.2 CONTROL/UART TEST COMMANDS                | 26        |
|            | 4.2.1 controlCapBuild                         | 27        |
|            | 4.2.2 controlSetRS232Speed                    | 28        |
|            | 4.2.3 controlRunScript                        | 28        |
|            | 4.2.4 Run All Control/UART Tests              | 29        |
|            | 4.3 FLASH TEST COMMANDS                       | 30        |
|            | 4.3.1 flashCapeMMC                            | 31        |
|            | 4.3.2 flashGetBlockData                       | 32        |
|            | 4.3.3 flashBlockTest                          | 32        |
|            | 4.3.4 flashUpdateTest                         | 33        |
|            | 4.3.5 Run All Flash Tests                     | 35        |
|            | 4.4 ETHERNET TEST COMMANDS                    | 36        |
|            | 4.5 SDRAM TEST COMMAND                        | 37        |
|            | 4.5.1 Run all Temperature tests               | 41        |
|            | 4.5.2 ethernetCapPresent                      | 42        |
|            | 4.5.3 EthernetLoopBack                        | 43        |



---

|                                   |     |
|-----------------------------------|-----|
| 4.6 LOG TEST COMMAND              | 44  |
| 4.7 NETWORK TEST COMMANDS         | 45  |
| 4.7.1 networkCapPresent           | 47  |
| 4.7.2 networkSetIP                | 48  |
| 4.7.3 networkGetIP                | 48  |
| 4.7.4 networkGetDHCPServerIP      | 49  |
| 4.7.5 networkGetInterfaceFlags    | 50  |
| 4.7.6 networkGetMAC               | 51  |
| 4.7.7 networkGetPortName          | 52  |
| 4.7.8 networkPing                 | 53  |
| 4.7.9 networkIperfStart           | 54  |
| 4.7.10 networkGetIperfStatus      | 56  |
| 4.7.11 networkGetIperfLog         | 57  |
| 4.7.12 networkIperfStop           | 58  |
| 4.7.13 networkDownloadFile        | 59  |
| 4.7.14 Run all Network Tests      | 60  |
| 4.8 TEMPERATURE TEST COMMANDS     | 66  |
| 4.8.1 temperatureCapSensors       | 67  |
| 4.8.2 temperatureGetCurrent       | 68  |
| 4.8.3 temperatureGetLimits        | 69  |
| 4.8.4 temperatureTest             | 70  |
| 4.9 Wi-Fi TEST COMMANDS           | 72  |
| 4.9.1 wifiStart                   | 73  |
| 4.9.2 wifiCapPresent              | 74  |
| 4.9.3 wifiCapAntennaCount         | 75  |
| 4.9.4 wifiSetAntenna              | 75  |
| 4.9.5 wifiGetVersions             | 76  |
| 4.9.6 wifiScan                    | 77  |
| 4.9.7 wifiGetSSIDCount            | 78  |
| 4.9.8 wifiGetSSIDInfoByIndex      | 79  |
| 4.9.9 wifiGetStats                | 79  |
| 4.9.10 wifiGetMAC                 | 80  |
| 4.9.11 wifiResetStats             | 81  |
| 4.9.12 wifiConnect                | 82  |
| 4.9.13 wifiDisconnect             | 82  |
| 4.9.14 wifiConfigReset            | 83  |
| 4.9.15 wifiSetPowerState          | 84  |
| 4.9.16 wifiSetRadio               | 85  |
| 4.9.17 wifiStop                   | 86  |
| 4.9.18 wifiGetPhyRate             | 87  |
| 4.9.19 wifiGetMcs                 | 88  |
| 4.9.20 wifiSetMcs                 | 89  |
| 4.9.21 wifiCheckNVRAM             | 89  |
| 4.9.22 Run all Wi-Fi tests        | 90  |
| 4.10 REDBUTTON RESET TEST COMMAND | 91  |
| 4.11 RUNNER TEST COMMAND          | 92  |
| 4.12 USB TEST COMMANDS            | 93  |
| 4.12.1 usbCapCount                | 93  |
| 4.12.2 usbMemoryFSTest            | 94  |
| 4.12.3 usbGetBulkPresent          | 94  |
| 4.13 SFP TEST COMMANDS            | 95  |
| 4.13.1 sfpDomMonitoringTest       | 96  |
| 4.13.2 sfpPrbsGenerate            | 99  |
| 4.14 PON TEST COMMANDS            | 100 |
| 4.14.1 gponModeGet                | 102 |

---



---

|                                     |     |
|-------------------------------------|-----|
| 4.14.2 serdesAccessTest             | 102 |
| 4.14.3 gponONUIIdGet                | 103 |
| 4.14.4 gponSNPwGet                  | 104 |
| 4.14.5 gponStateGet                 | 105 |
| 4.14.6 Run all PON Tests            | 106 |
| 4.15 CLIENT TEST COMMANDS           | 108 |
| 4.15.1 ClientSetBootFlag            | 109 |
| 4.15.2 ClientGetImageInfo           | 109 |
| 4.15.3 ClientGetSecMode             | 112 |
| 4.15.4 ClientGetSecImageInfo        | 113 |
| 4.15.4.1 CSHELL                     | 115 |
| 4.15.4.2 NSHELL                     | 115 |
| 4.15.4.3 LINUXSHELL                 | 116 |
| 4.16 LED TEST COMMAND               | 117 |
| 4.16.1 ledCapLEDs                   | 118 |
| 4.16.2 ledSetState                  | 119 |
| 4.16.3 getLedColor                  | 121 |
| 4.16.4 setLedColor                  | 123 |
| 4.16.5 ledSetPattern                | 123 |
| 4.16.6 setLedBlinkColor             | 124 |
| 4.16.7 setLedBlinkRate              | 125 |
| 4.16.8 ledSetLuminosity             | 127 |
| 4.17 TILT TEST COMMAND              | 129 |
| 4.17.1 TiltGetAngles                | 130 |
| 4.17.2 TiltGetOrientation           | 130 |
| 4.17.3 Run all TILT tests           | 131 |
| 4.18 CELLULAR TEST COMMAND          | 132 |
| 4.18.1 CellularDeviceInfo           | 133 |
| 4.18.2 cellularSecMode              | 134 |
| 4.18.3 cellularSetUsbState          | 135 |
| 4.18.4 cellularGetQCVersion         | 136 |
| 4.18.5 cellularChkCalData           | 137 |
| 4.18.6 cellularGetThermalStatus     | 138 |
| 4.18.7 cellularGetCpuUsage          | 138 |
| 4.18.8 cellularGetMemoryUsage       | 139 |
| 4.18.9 cellularGetBootStatus        | 140 |
| 4.18.10 cellularReboot              | 141 |
| 4.18.11 cellularGetOpMode           | 142 |
| 4.18.12 cellularGetSIMStatus        | 143 |
| 4.18.13 cellularGetDeviceLog        | 144 |
| 4.18.14 cellularGetMSISDNMBDN       | 145 |
| 4.18.15 cellularResetFactory        | 146 |
| 4.18.16 cellularSIMTestMode         | 147 |
| 4.18.17 cellularResetSIMProfile     | 148 |
| 4.18.18 cellularFlashUpdate         | 149 |
| 4.18.19 cellularGetICCID            | 150 |
| 4.18.20 cellularStartCollectQXDMLog | 151 |
| 4.18.21 cellularStopCollectQXDMLog  | 152 |
| 4.19 LED MATRIX TEST COMMAND        | 153 |
| 4.19.1 LEDMatrix                    | 153 |
| 4.19.2 LEDMATRIXSETALLLED           | 155 |
| 4.20 FAN TEST COMMAND               | 157 |
| 4.20.1 FanGetStatus                 | 157 |
| 4.20.2 FanSetState                  | 158 |
| 4.20.3 fanGetMaxSpeed               | 159 |



---

|            |                                     |            |
|------------|-------------------------------------|------------|
|            | 4.20.4 fanGetSpeed                  | 160        |
|            | 4.20.5 fanSetSpeed                  | 160        |
|            | 4.20.6 fanGetPWM                    | 161        |
|            | 4.20.7 SetAutomaticControl          | 162        |
|            | 4.20.8 GetAutomaticControl          | 162        |
| Chapter 5: | <b>BIST CLI BASED TEST COMMANDS</b> | <b>163</b> |
|            | 5.1 BOX TEST COMMANDS               | 166        |
|            | 5.1.1 boxCapAVS                     | 166        |
|            | 5.1.2 boxGetAVSVoltage              | 166        |
|            | 5.1.3 boxGetCPUUsage                | 166        |
|            | 5.1.4 boxReboot                     | 167        |
|            | 5.1.5 Get BIST Version              | 167        |
|            | 5.1.6 Get Model                     | 168        |
|            | 5.2 CONTROL/UART TEST COMMANDS      | 168        |
|            | 5.2.1 controlCapBuild               | 168        |
|            | 5.2.2 controlSetRS232Speed          | 168        |
|            | 5.2.3 controlRunScript              | 169        |
|            | 5.3 ETHERNET TEST COMMANDS          | 169        |
|            | 5.3.1 ethernetCapPresent            | 169        |
|            | 5.4 FLASH TEST COMMANDS             | 170        |
|            | 5.4.1 flashCapeMMC                  | 170        |
|            | 5.4.2 flashGetBlockData             | 170        |
|            | 5.4.3 flashUpdate                   | 171        |
|            | 5.4.4 flashBlockTest                | 172        |
|            | 5.5 LOG TEST COMMAND                | 173        |
|            | 5.6 SDRAM TEST COMMAND              | 173        |
|            | 5.7 NETWORK TEST COMMANDS           | 176        |
|            | 5.7.1 networkCapPresent             | 176        |
|            | 5.7.2 networkSetIP                  | 176        |
|            | 5.7.3 networkGetIP                  | 177        |
|            | 5.7.4 networkGetDHCPServerIP        | 178        |
|            | 5.7.5 networkGetInterfaceFlags      | 179        |
|            | 5.7.6 networkGetMAC                 | 180        |
|            | 5.7.7 networkGetPortName            | 181        |
|            | 5.7.8 networkPing                   | 182        |
|            | 5.7.9 networkIperfStart             | 183        |
|            | 5.7.10 networkGetIperfStatus        | 183        |
|            | 5.7.11 networkGetIperfLog           | 184        |
|            | 5.7.12 networkIperfStop             | 184        |
|            | 5.7.13 networkDownloadFile          | 185        |
|            | 5.8 TEMPERATURE TEST COMMANDS       | 185        |
|            | 5.8.1 temperatureCapSensors         | 185        |
|            | 5.8.2 temperatureGetCurrent         | 186        |
|            | 5.8.3 temperatureGetLimits          | 187        |
|            | 5.8.4 temperatureTest               | 187        |
|            | 5.9 WI-FI TEST COMMANDS             | 189        |
|            | 5.9.1 wifiStart                     | 189        |
|            | 5.9.2 wifiCapPresent                | 190        |
|            | 5.9.3 wifiCapAntennaCount           | 190        |
|            | 5.9.4 wifiSetAntenna                | 190        |
|            | 5.9.5 wifiGetVersions               | 191        |
|            | 5.9.6 wifiScan                      | 191        |
|            | 5.9.7 wifiGetSSIDCount              | 192        |
|            | 5.9.8 wifiGetSSIDInfoByIndex        | 192        |
|            | 5.9.9 wifiGetStats                  | 192        |

---



---

|                                   |     |
|-----------------------------------|-----|
| 5.9.10 wifiGetMAC                 | 193 |
| 5.9.11 wifiResetStats             | 193 |
| 5.9.12 wifiConnect                | 194 |
| 5.9.13 wifiDisconnect             | 194 |
| 5.9.14 wifiSetPassword            | 195 |
| 5.9.15 wifiConfigReset            | 195 |
| 5.9.16 wifiSetPowerState          | 195 |
| 5.9.17 wifiSetRadio               | 196 |
| 5.9.18 wifiStop                   | 196 |
| 5.9.19 wifiPhyRate                | 197 |
| 5.9.20 wifiGetMcs                 | 197 |
| 5.9.21 wifiSetMcs                 | 198 |
| 5.9.22 wifiGetwpsPin              | 198 |
| 5.9.23 wifiSetwpsPin              | 199 |
| 5.10 USB TEST COMMANDS            | 200 |
| 5.10.1 usbCapCount                | 200 |
| 5.10.2 usbMemoryFSTest            | 200 |
| 5.11 PON TEST COMMANDS            | 201 |
| 5.11.1 serdesAccessTest           | 201 |
| 5.12 CLIENT TEST COMMANDS         | 202 |
| 5.12.1 ClientSetBootFlag          | 202 |
| 5.12.2 clientGetImageInfo         | 202 |
| 5.12.3 ClientGetSecMode           | 204 |
| 5.12.4 ClientGetSecImageInfo      | 205 |
| 5.12.5 ClientGetJtagOtpLockStatus | 205 |
| 5.12.6 ClientGetOtpCustLockStatus | 206 |
| 5.12.7 ClientRunShellCommands     | 206 |
| 5.12.7.1 CSHELL                   | 206 |
| 5.12.7.2 NSHELL                   | 207 |
| 5.12.7.3 LINUXSHELL               | 207 |
| 5.13 LED TEST COMMAND             | 208 |
| 5.13.1 ledCapLEDs                 | 208 |
| 5.13.2 ledSetState                | 208 |
| 5.13.3 getLedColor                | 210 |
| 5.13.4 setLedColor                | 210 |
| 5.13.5 ledSetPattern              | 211 |
| 5.13.6 setLedBlinkColor           | 211 |
| 5.13.7 setLedBlinkRate            | 212 |
| 5.13.8 ledSetLuminosity           | 212 |
| 5.14 TILT TEST COMMAND            | 213 |
| 5.14.1 TiltGetAngles              | 213 |
| 5.14.2 TiltGetOrientation         | 214 |
| 5.14.3 Run all TILT tests         | 214 |
| 5.15 CELLULAR TEST COMMAND        | 215 |
| 5.15.1 CellularDeviceInfo         | 216 |
| 5.15.2 cellularSecMode            | 216 |
| 5.15.3 cellularSetUsbState        | 217 |
| 5.15.4 cellularGetQCNVersion      | 218 |
| 5.15.5 cellularChkCalData         | 218 |
| 5.15.6 cellularGetThermalStatus   | 218 |
| 5.15.7 cellularGetCpuUsage        | 219 |
| 5.15.8 cellularGetMemoryUsage     | 220 |
| 5.15.9 cellularGetBootStatus      | 220 |
| 5.15.10 cellularReboot            | 221 |
| 5.15.11 cellularGetOpMode         | 222 |



---

|                                     |     |
|-------------------------------------|-----|
| 5.15.12 cellularGetSIMStatus        | 222 |
| 5.15.13 cellularGetDeviceLog        | 223 |
| 5.15.14 cellularGetMSISDNMBDN       | 223 |
| 5.15.15 cellularResetFactory        | 224 |
| 5.15.16 cellularSIMTestMode         | 225 |
| 5.15.17 cellularResetSIMProfile     | 226 |
| 5.15.18 cellularFlashUpdate         | 227 |
| 5.15.19 cellularStartCollectQXDMLog | 228 |
| 5.15.20 cellularStopCollectQXDMLog  | 229 |
| 5.16 FAN TEST COMMAND               | 229 |
| 5.16.1 FanGetStatus                 | 229 |
| 5.16.2 FanSetState                  | 230 |
| 5.16.3 fanGetMaxSpeed               | 230 |
| 5.16.4 fanGetSpeed                  | 230 |
| 5.16.5 fanSetSpeed                  | 231 |
| 5.16.6 fanGetPWM                    | 231 |
| 5.16.7 SetAutomaticControl          | 232 |
| 5.16.8 GetAutomaticControl          | 232 |



## Figures

|                                                        |    |
|--------------------------------------------------------|----|
| Figure 2-1: BIST USB-SERIAL (DATA PORT) Hardware Setup | 7  |
| Figure 3-1: Debug Console Setup                        | 10 |
| Figure 3-2: BIST Server and Data Port Running Status   | 10 |
| Figure 3-3: run_bist.sh Script                         | 14 |
| Figure 3-4: Flash Update in Limited Mode               | 16 |
| Figure 3-5: Running Individual All Tests               | 18 |
| Figure 4-1: Box Test Commands                          | 20 |
| Figure 4-2: boxCapAVS Command                          | 21 |
| Figure 4-3: boxGetAVSVoltage Command                   | 21 |
| Figure 4-4: boxGetCPUUsage Command                     | 22 |
| Figure 4-5: boxReboot Test                             | 23 |
| Figure 4-6: Get BIST Version Test                      | 23 |
| Figure 4-7: Get Model Test                             | 24 |
| Figure 4-8: Run All box Tests                          | 26 |
| Figure 4-9: Control/UART Tests                         | 27 |
| Figure 4-10: controlCapBuild Command                   | 28 |
| Figure 4-11: controlSetRS232Speed Command              | 29 |
| Figure 4-12: controlRunScript Command                  | 29 |
| Figure 4-13: Run All Control/UART Tests                | 30 |
| Figure 4-18: Flash Test Commands                       | 31 |
| Figure 4-19: flashCapeMMC Test Commands                | 32 |
| Figure 4-20: flashGetBlockData Test                    | 33 |
| Figure 4-21: Flash Block Tests                         | 33 |
| Figure 4-22: Run All Flash Tests                       | 34 |
| Figure 4-14: Ethernet Test commands                    | 35 |
| Figure 4-24: SDRAM Test Command (1)                    | 36 |
| Figure 4-25: SDRAM Test Command (2)                    | 37 |
| Figure 4-53: Run All Temperature Tests                 | 39 |
| Figure 4-15: ethernetCapPresent Tests                  | 40 |
| Figure 4-23: Log Test Command                          | 43 |
| Figure 4-26: Network Test Command                      | 45 |
| Figure 4-27: networkCapPresent Test Command            | 46 |
| Figure 4-28: networkSetIP Test Command                 | 47 |
| Figure 4-29: networkGetIP Test Command                 | 48 |
| Figure 4-30: networkGetDHCPserverIP Test Command       | 49 |
| Figure 4-31: networkGetInterfaceFlags Test Command     | 50 |
| Figure 4-32: networkGetMAC Test Command                | 51 |
| Figure 4-33: networkGetPortName Test Command           | 52 |
| Figure 4-34: networkPing Test Command                  | 53 |
| Figure 4-35: networkIperfStart Test Command            | 54 |
| Figure 4-36: networkIperf3Start Test Command           | 54 |
| Figure 4-37: networkIperfStart (Server) Test Command   | 55 |
| Figure 4-38: networkIperf3Start (Server) Test Command  | 55 |
| Figure 4-39: networkGetIperfStatus Test Command        | 56 |
| Figure 4-40: networkGetIperfLog Test Command           | 57 |
| Figure 4-41: networkIperfStop Test Command             | 58 |
| Figure 4-42: networkDownloadFile Test Command          | 59 |
| Figure 4-43: Run All Network Tests (1)                 | 60 |
| Figure 4-44 Run All Network Tests (2)                  | 61 |
| Figure 4-45 Run All Network Tests (3)                  | 62 |
| Figure 4-46: Run All Network Tests (4)                 | 63 |
| Figure 4-47: Temperature Test Commands                 | 67 |



|                                                  |     |
|--------------------------------------------------|-----|
| Figure 4-48: TemperatureCapSensors Test Command  | 68  |
| Figure 4-49: TemperatureGetCurrent Test Command  | 69  |
| Figure 4-50: TemperatureGetLimits Tests          | 70  |
| Figure 4-51: TemperatureTest Command (1)         | 71  |
| Figure 4-52: Temperature Test Command (2)        | 72  |
| Figure 4-58: Wi-Fi Test Commands                 | 74  |
| Figure 4-59: wifiStart Test Commands             | 75  |
| Figure 4-60: wifiCapPresent Test Command         | 76  |
| Figure 4-61: WifiCapAntennaCount Test Command    | 77  |
| Figure 4-62: wifiSetAntenna Test Command         | 78  |
| Figure 4-63: wifiGetVersions Test Command        | 79  |
| Figure 4-64: wifiScan Test Command               | 80  |
| Figure 4-65: wifiGetSSIDCount Test Command       | 81  |
| Figure 4-66: wifiGetSSIDInfoByIndex Test Command | 82  |
| Figure 4-67: wifiGetStats Test Command           | 83  |
| Figure 4-68: wifiGetMAC Test Command             | 84  |
| Figure 4-69: wifiResetStats Test Command         | 85  |
| Figure 4-70: wifiConnect Test Command            | 86  |
| Figure 4-71: wifiDisconnect Test Command         | 87  |
| Figure 4-73: wifiConfigReset Test Command        | 88  |
| Figure 4-74: wifiSetPowerState Test Command      | 89  |
| Figure 4-75: wifiSetRadio Test Command           | 90  |
| Figure 4-76: wifiStop Test Command               | 91  |
| Figure 4-77: wifiGetPhyRate Test Command         | 92  |
| Figure 4-78: wifiGetMcs Test Command             | 93  |
| Figure 4-79: wifiSetMcs Test Command             | 94  |
| Figure 4-103: PON Test commands                  | 105 |
| Figure 4-104: GponModeGet Test Command           | 106 |
| Figure 4-105: SerdesAccessTest command           | 107 |
| Figure 4-106: gponONUIdGet command               | 108 |
| Figure 4-107: gponSNPwGet command                | 109 |
| Figure 4-108: gponStateGet command               | 110 |
| Figure 4-109: Run All PON tests                  | 111 |
| Figure 4-110: Client Tests                       | 112 |
| Figure 4-111: ClientSetBootFlag Test             | 113 |
| Figure 4-112: ClientGetImageInfo Tests (1)       | 114 |
| Figure 4-113: ClientGetImageInfo Tests (2)       | 116 |
| Figure 4-114: ClientGetSecMode Command           | 117 |
| Figure 4-115: ClientGetSecImageInfo Command      | 118 |
| Figure 4-118: CSHELL Tests                       | 119 |
| Figure 4-119: NSHELL Tests                       | 120 |
| Figure 4-120: LINUXSHELL Tests                   | 121 |
| Figure 4-121: LED Test Commands                  | 122 |
| Figure 4-122: ledCapLEDs Test Command            | 123 |
| Figure 4-123: leSetState Test Command (1)        | 124 |
| Figure 4-124: ledSetState Test command (2)       | 124 |
| Figure 4-125: getLedColor Test Command           | 126 |
| Figure 4-126: setLedColor Test Command           | 127 |
| Figure 4-127: ledSetPattern Test Command         | 128 |
| Figure 4-128: setLedBlinkColor Test Command      | 129 |
| Figure 4-129: setLedBlinkRate Test Command       | 131 |
| Figure 4-130: LED Luminosity tests (1)           | 131 |
| Figure 4-131: LED Luminosity tests (2)           | 132 |
| Figure 4-131: LED Luminosity tests (3)           | 133 |
| Figure 4-140: Tilt Command Menu                  | 134 |



---

|                                                       |     |
|-------------------------------------------------------|-----|
| Figure 4-141: TiltGetAngles                           | 135 |
| Figure 4-142: TiltGetOrientation                      | 135 |
| Figure 4-143: Run all Tilt test commands              | 136 |
| Figure 5-1: BIST CLI Help (1)                         | 165 |
| Figure 5-2: BIST CLI Help (2)                         | 166 |
| Figure 5-3: BIST CLI Help (3)                         | 167 |
| Figure 5-4: boxCapAVS Command                         | 168 |
| Figure 5-5: boxGetAVSVoltage Command                  | 168 |
| Figure 5-6: boxGetCPUUsage Command                    | 169 |
| Figure 5-7: boxReboot Test                            | 169 |
| Figure 5-8: Get BIST Version Test                     | 169 |
| Figure 5-9: Get Model Test                            | 170 |
| Figure 5-10: controlCapBuild Command                  | 170 |
| Figure 5-11: controlSetRS232Speed Command             | 171 |
| Figure 5-12: controlRunScript Command                 | 171 |
| Figure 5-13: ethernetCapPresent Tests                 | 172 |
| Figure 5-15: flashCapeMMC Test Commands               | 172 |
| Figure 5-16: flashGetBlockData Tests                  | 173 |
| Figure 5-17: flashUpdate Tests                        | 174 |
| Figure 5-18: flashBlockTest Tests                     | 174 |
| Figure 5-19: Log Test Command                         | 175 |
| Figure 5-20: SDRAM CLI Tests (1)                      | 176 |
| Figure 5-21: SDRAM CLI Tests (2)                      | 177 |
| Figure 5-22: SDRAM Test Command (3)                   | 177 |
| Figure 5-23: networkCapPresent Test Command           | 178 |
| Figure 5-24: networkSetIP Test Command                | 179 |
| Figure 5-25: networkGetIP Test Command                | 180 |
| Figure 5-26: networkGetDHCP ServerIP Test Command     | 181 |
| Figure 5-27: networkGetInterfaceFlags Test Command    | 182 |
| Figure 5-28: networkGetMAC Test Command               | 183 |
| Figure 5-29: networkGetPortName Test Command          | 184 |
| Figure 5-30: networkPing Test Command                 | 184 |
| Figure 5-31: networkIperf2Start Test Command          | 185 |
| Figure 5-32: networkIperf3Start Test Command          | 185 |
| Figure 5-33: networkIperfStart (Server) Test Command  | 185 |
| Figure 5-34: networkIperf3Start (Server) Test Command | 185 |
| Figure 5-35: networkGetIperfStatus Test Command       | 186 |
| Figure 5-36: networkGetIperfLog Test Command          | 186 |
| Figure 5-37: networkIperfStop Test Command            | 187 |
| Figure 5-38: networkDownloadFile Test Command         | 187 |
| Figure 5-39: TemperatureCapSensors Test Command       | 188 |
| Figure 5-40: TemperatureGetCurrent Test Command       | 188 |
| Figure 5-41: TemperatureGetLimits Tests               | 189 |
| Figure 5-42: TemperatureTest Command (1)              | 190 |
| Figure 5-43 Temperature test command (2)              | 191 |
| Figure 5-44: wifiStart Test Commands                  | 191 |
| Figure 5-45: WifiCapPresent Test Command              | 192 |
| Figure 5-46: WifiCapAntennaCount Test Command         | 192 |
| Figure 5-47: WifiSetAntenna Test Command              | 193 |
| Figure 5-48: WifiGetVersions Test Command             | 193 |
| Figure 5-49: wifiScan Test Command                    | 193 |
| Figure 5-50: wifiGetSSIDCount Test Command            | 194 |
| Figure 5-51: wifiGetStats Test Command                | 195 |
| Figure 5-52: wifiGetMAC Test Command                  | 195 |
| Figure 5-53: wifiResetStats Test Command              | 196 |

---



---

|                                                      |     |
|------------------------------------------------------|-----|
| Figure 5-54: wifiConnect Test Command                | 196 |
| Figure 5-55: wifiDisconnect Test Command             | 197 |
| Figure 5-56: wifiSetPassword Test Command            | 197 |
| Figure 5-57: wifiConfigReset Test Command            | 197 |
| Figure 5-58: wifiSetPowerState Test Command          | 198 |
| Figure 5-59: wifiSetRadio Test Command               | 198 |
| Figure 5-60: wifiStop Test Command                   | 199 |
| Figure 5-61: wifiPhyRate Test Command                | 199 |
| Figure 5-62: wifiGetMcs Test Command                 | 200 |
| Figure 5-63: wifiSetMcs Test Command                 | 200 |
| Figure 5-64: wifiGetwpsPin Test Command              | 201 |
| Figure 5-65: wifiSetwpsPin Test Command              | 201 |
| Figure 5-69: Runner Access Test Command              | 201 |
| Figure 5-70: usbCapCount Test Command                | 202 |
| Figure 5-71: usbMemoryFSTest Command                 | 202 |
| Figure 5-74: usbBulkTestIn Test Command              | 203 |
| Figure 5-76: SerdesAccessTest command                | 203 |
| Figure 5-80: ClientSetBootFlag Command               | 204 |
| Figure 5-81: ClientGetImageInfo Test Command (1)     | 205 |
| Figure 5-82: ClientGetImageInfo Test Command (2)     | 206 |
| Figure 5-83: ClientGetSecMode Command                | 206 |
| Figure 5-84: ClientGetSecImageInfo Command           | 207 |
| Figure 5-85: ClientGetJtagOtpLockStatus Command      | 207 |
| Figure 5-86: ClientGetOtpCustLockStatus Command      | 208 |
| Figure 5-87: RunShellCommand Test Cshell Command     | 208 |
| Figure 5-88: RunShellCommand Test Nshell Command     | 209 |
| Figure 5-89: RunShellCommand Test LINUXSHELL Command | 210 |
| Figure 5-90: ledCapLEDs Test Command                 | 210 |
| Figure 5-91: ledSetState Command                     | 211 |
| Figure 5-92: getLedColor Test Command                | 212 |
| Figure 5-93: setLedColor Test Command                | 213 |
| Figure 5-94: ledSetPattern Test Command              | 213 |
| Figure 5-95: setLedBlinkColor Test Command           | 214 |
| Figure 5-96: setLedBlinkRate Test Command            | 214 |
| Figure 5-97: ledSetLuminosity Test Command           | 215 |
| Figure 5-98: TiltGetAngles Command                   | 216 |
| Figure 5-99: TiltGetOrientation Command              | 216 |
| Figure 4-143: Run all Tilt test commands             | 217 |

## Tables

---

Table 1-1: List of BIST Test Commands

1

## Revision History

| Date       | Version | Author    | Changes                                                                                                                                                                                      |
|------------|---------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10/19/2021 | 1.0     | Capgemini | BIST Drop 1 Release                                                                                                                                                                          |
| 11/05/2021 | 2.0     | Capgemini | BIST Drop 2 Release                                                                                                                                                                          |
| 11/24/2021 | 2.1     | Capgemini | Mode change command is updated                                                                                                                                                               |
| 11/30/2021 | 2.2     | Capgemini | BIST Drop 3 Release updates                                                                                                                                                                  |
| 01/25/2022 | 2.3     | Capgemini | Drop 4 Release updates                                                                                                                                                                       |
| 02/18/2022 | 2.4     | Capgemini | Updated reference CGW150 to CGW450                                                                                                                                                           |
| 05/06/2022 | 2.5     | Capgemini | Updated SFP Test Commands                                                                                                                                                                    |
| 05/27/2022 | 2.6     | Capgemini | Updated Cellular Device Information                                                                                                                                                          |
| 07/22/2022 | 2.7     | Capgemini | Updated Fan, Led Matrix and Cellular Commands                                                                                                                                                |
| 08/05/2022 | 2.8     | Capgemini | Updated Menu Mode cellularStartCollectQXDMLog and CLI Mode cellularStartCollectQXDMLog                                                                                                       |
| 08/19/2022 | 2.9     | Capgemini | Updated 4.9.21 wifiCheckNVRAM and added 3.3.4.1 Flash snap                                                                                                                                   |
| 09/02/2022 | 2.10    | Capgemini | Updated BIST command cellularFlashUpdate Normal Mode: YES to NO and added 4.3.4 flashUpdateTest                                                                                              |
| 09/16/2022 | 2.11    | Capgemini | Updated BIST command cellularFlashUpdate Normal Mode: NO to YES and added 4.3.4 flashUpdateTest<br>Updated the screenshots for wifi,network and Temperature test cases as wifi 6GHz disabled |
| 09/30/2022 | 2.12    | Capgemini | Edit the heading and figure name from cellularDELETMSISDNMBDN to cellularGetMSISDNMBDN<br>Updated the 1.3.3 command matrix.                                                                  |
| 10/14/2022 | 2.13    | Capgemini | Updated cellular test cases in CLI mode, BIST Command Matrix table and BIST Test Commands.                                                                                                   |

## Open Issues in BIST

---

| S. No | Issue Description | Remarks |
|-------|-------------------|---------|
|       | None              |         |

# Chapter 1

## 1. Introduction

---

### 1.1 Objectives

This document describes how the user should run BIST in CGW450 board and it provides step-by-step execution of each test in BIST.

### 1.2 BIST Test Commands for CGW450

The list of BIST commands to validate the hardware interfaces in CGW450 target are as mentioned in Table 1-1.

**Table 1-1: List of BIST Test Commands**

| S.No | BIST Test Commands    |
|------|-----------------------|
| 1.   | Box Info Test         |
| 2.   | Control / UART Test   |
| 3.   | Ethernet Test         |
| 4.   | Flash Test            |
| 5.   | LogCopy Test          |
| 6.   | SDRAM Test            |
| 7.   | Network Test          |
| 8.   | Temperature Test      |
| 9.   | Wi-Fi Test            |
| 10.  | SFP Test              |
| 11.  | Red Button Reset Test |



| S.No | BIST Test Commands |
|------|--------------------|
| 12.  | Runner Access Test |
| 13.  | USB Test           |
| 14.  | PON Test           |
| 15.  | Client Test        |
| 16.  | LED Test           |
| 17.  | FAN TEST           |
| 18.  | Tilt Sensor Test   |
| 19.  | Cellular Test      |
| 20.  | LED Matrix Test    |

## 1.3 BIST Operational Modes

BIST Software supports three different modes.

- Special Mode
- Normal Mode
- Limited Mode (Support only in Production Builds)

### 1.3.1 BIST Special Mode

BIST Special Mode supports the following

- Full set of BIST commands can be executed to validate all the hardware interfaces supported in RG.
- Refer table 0 for the supported commands in special mode.
- SDB(Turquoise) Application will not run while BIST is running in special mode.

### 1.3.2 BIST Normal Mode

BIST Normal Mode supports the following

- Only limited Set of BIST commands are executed to validate the hardware interfaces supported in RG.
- Refer table 0 for the supported commands in normal mode.
- DDR and eMMC Flash extensive BIST test commands are not supported in BIST Normal Mode. For supported test commands, refer section 4.
- SDB(Turquoise) Application will run while BIST is running in normal mode.

### 1.3.3 BIST Commands Matrix

BIST command matrix table.

| BIST Commands | Normal Mode | Special Mode | Limited Mode |
|---------------|-------------|--------------|--------------|
| boxCapAVS     | YES         | YES          | NO           |



| BIST Commands                | Normal Mode | Special Mode | Limited Mode |
|------------------------------|-------------|--------------|--------------|
| boxGetAVSVoltage             | YES         | YES          | NO           |
| boxGetCPUUsage               | YES         | YES          | NO           |
| boxReboot                    | NO          | YES          | NO           |
| bistGetVersion               | YES         | YES          | NO           |
| getModel                     | YES         | YES          | NO           |
| CellularDeviceInfo           | YES         | YES          | YES          |
| CellularGetBootStatus        | YES         | YES          | NO           |
| CellularGetQCNVersion        | YES         | YES          | NO           |
| CellularGetSecMode           | YES         | YES          | NO           |
| CellularCheckCalibrationData | YES         | YES          | NO           |
| CellularGetThermalStatus     | YES         | YES          | NO           |
| cellularGetCpuUsage          | YES         | YES          | NO           |
| cellularGetMemoryUsage       | YES         | YES          | NO           |
| cellularReboot               | NO          | YES          | NO           |
| cellularGetOpMode            | YES         | YES          | NO           |
| cellularGetSIMStatus         | YES         | YES          | NO           |
| cellularGetDeviceLog         | YES         | YES          | NO           |
| cellularGetMSISDNMBDN        | NO          | YES          | NO           |
| cellularResetFactory         | NO          | YES          | NO           |
| cellularSIMTestMode          | NO          | YES          | NO           |
| cellularResetSIMProfile      | NO          | YES          | NO           |
| cellularFlashUpdate          | NO          | YES          | NO           |
| cellularGetICCID             | NO          | YES          | NO           |
| cellularStartCollectQXDMLog  | YES         | NO           | NO           |
| cellularStopCollectQXDMLog   | YES         | NO           | NO           |
| ClientGetImageInfo           | YES         | YES          | NO           |
| ClientSetBootFlag            | NO          | YES          | NO           |
| ClientGetSecMode             | YES         | YES          | YES          |
| ClientGetSecImageInfo        | YES         | YES          | YES          |
| ClientGetJtagOtpLockStatus   | YES         | YES          | YES          |
| ClientGetOtpCustLockStatus   | YES         | YES          | YES          |
| RunShellCommand              | YES         | NO           | NO           |
| ControlCapBuild              | YES         | YES          | NO           |
| ControlRunScript             | YES         | YES          | NO           |
| ControlSetRS232Speed         | YES         | YES          | NO           |
| EthernetCapPresent           | YES         | YES          | NO           |
| EthernetLoopback             | NO          | YES          | NO           |
| FlashBlockTest               | NO          | YES          | NO           |



| BIST Commands            | Normal Mode | Special Mode | Limited Mode |
|--------------------------|-------------|--------------|--------------|
| FlashCapeMMC             | YES         | YES          | NO           |
| FlashGetBlockData        | YES         | YES          | NO           |
| FlashUpdate              | YES         | NO           | YES          |
| GetLedColor              | YES         | YES          | NO           |
| LedCapLEDS               | YES         | YES          | NO           |
| LedSetLuminosity         | YES         | YES          | NO           |
| LedSetPattern            | YES         | YES          | NO           |
| LedSetState              | YES         | YES          | NO           |
| SetLedBlinkColor         | YES         | YES          | NO           |
| SetLedBlinkRate          | YES         | YES          | NO           |
| SetLedColor              | YES         | YES          | NO           |
| LogCopy                  | YES         | YES          | NO           |
| NetworkGetPortName       | YES         | YES          | NO           |
| NetworkCapPresent        | YES         | YES          | NO           |
| NetworkDownloadFile      | YES         | YES          | NO           |
| NetworkGetDHCPServerIP   | NO          | YES          | NO           |
| NetworkGetInterfaceFlags | YES         | YES          | NO           |
| NetworkGetIP             | NO          | YES          | NO           |
| NetworkGetIperfLog       | NO          | YES          | NO           |
| NetworkGetIperfStatus    | NO          | YES          | NO           |
| NetworkGetMAC            | YES         | YES          | NO           |
| NetworkIperfStart        | NO          | YES          | NO           |
| NetworkIperfStop         | NO          | YES          | NO           |
| NetworkPing              | YES         | YES          | NO           |
| NetworkSetIP             | NO          | YES          | NO           |
| SerDesAccessTest         | YES         | YES          | NO           |
| gponStateGet             | YES         | YES          | NO           |
| gponSNPwdGet             | YES         | YES          | NO           |
| gponModeGet              | YES         | YES          | NO           |
| gponONUIDGet             | YES         | YES          | NO           |
| RedButtonResetTest       | NO          | YES          | NO           |
| RunnerAccessTest         | YES         | YES          | NO           |
| SdRamTest                | YES         | YES          | NO           |
| SfpDomMonitoringTest     | YES         | YES          | NO           |
| SfpPrbsGenerate          | YES         | YES          | NO           |
| TemperatureCapSensor     | YES         | YES          | NO           |
| TemperatureGetCurrent    | YES         | YES          | NO           |
| TemperatureGetLimits     | YES         | YES          | NO           |



| BIST Commands                          | Normal Mode | Special Mode | Limited Mode |
|----------------------------------------|-------------|--------------|--------------|
| TemperatureTest                        | NO          | YES          | NO           |
| TiltGetAngles                          | YES         | YES          | NO           |
| TiltGetOrientation                     | YES         | YES          | NO           |
| UsbBulkTest [Out/In]                   | YES         | YES          | NO           |
| UsbExtBulkTest [Out/In]                | YES         | YES          | NO           |
| UsbCapCount                            | YES         | YES          | NO           |
| UsbGetBulkPresent                      | YES         | YES          | NO           |
| UsbMemoryFSTest                        | YES         | YES          | NO           |
| WifiCapAntennaCount                    | YES         | YES          | NO           |
| WifiCapPresent                         | YES         | YES          | NO           |
| WifiConfigReset                        | NO          | YES          | NO           |
| WifiGetConnectionInfo<br>(wifiConnect) | YES         | YES          | NO           |
| WifiDisconnect                         | YES         | YES          | NO           |
| WifiGetMac                             | YES         | YES          | NO           |
| WifiGetSSIDCount                       | YES         | YES          | NO           |
| WifiGetSSIDInfoByIndex                 | YES         | YES          | NO           |
| WifiGetStats                           | YES         | YES          | NO           |
| WifiGetVersions                        | YES         | YES          | NO           |
| WifiResetStats                         | NO          | YES          | NO           |
| WifiScan                               | YES         | YES          | NO           |
| WifiSetAntenna                         | NO          | YES          | NO           |
| WifiSetPassword                        | YES         | NO           | NO           |
| WifiSetPowerState                      | NO          | YES          | NO           |
| WifiStart                              | YES         | YES          | NO           |
| WifiStop                               | YES         | YES          | NO           |
| WifiGetWpsPin                          | YES         | NO           | NO           |
| WifiSetWpsPin                          | YES         | NO           | NO           |
| WifiSetRadio                           | YES         | YES          | NO           |
| WifiGetMcs                             | YES         | YES          | NO           |
| WifiSetMcs                             | YES         | YES          | NO           |
| wifiGetPhyRate                         | YES         | YES          | NO           |
| fanGetStatus                           | YES         | NO           | NO           |
| fanSetState                            | YES         | NO           | NO           |
| fanGetMaxSpeed                         | YES         | NO           | NO           |
| fanGetSpeed                            | YES         | NO           | NO           |
| fanSetSpeed                            | YES         | NO           | NO           |
| fanGetPWM                              | YES         | NO           | NO           |



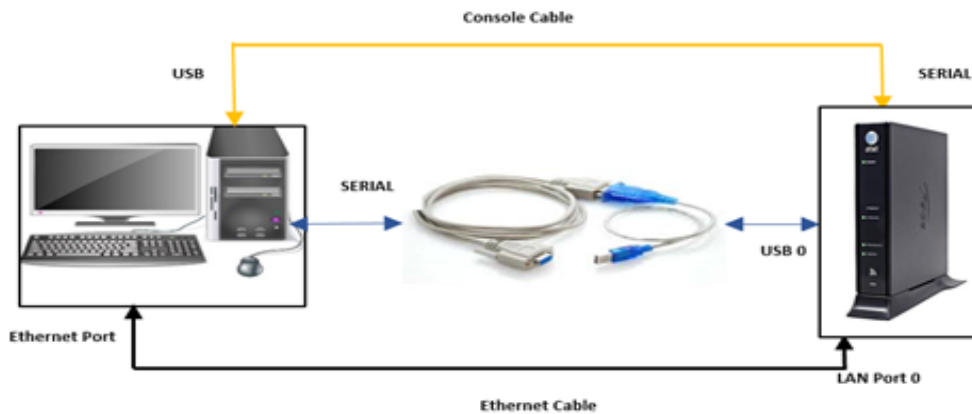
| BIST Commands      | Normal Mode | Special Mode | Limited Mode |
|--------------------|-------------|--------------|--------------|
| fanSetAutoControl  | YES         | NO           | NO           |
| fanGetAutoControl  | YES         | NO           | NO           |
| LEDMatrix          | NO          | YES          | NO           |
| LEDMatrixSetAllLed | NO          | YES          | NO           |

# Chapter

# 2

## 2. Initial Setup for BIST Testing

User shall connect the hardware as in the Figure 2-1.



**Figure 2-1: BIST USB-SERIAL (DATA PORT) Hardware Setup**

| S.No | Software/Hardware Requirements          |
|------|-----------------------------------------|
| 1    | CGW450                                  |
| 2    | Ubuntu Linux Machine 64bit - 14.04      |
| 3    | PL203 USB to SERIAL (Male) - 2 Nos      |
| 4    | DB9 Null Modem cable (Female to Female) |

# Chapter

# 3

## 2.1.1 BIST Limited Mode

BIST Limited only supports in Production build. Refer table 0 for the supported commands in limited mode.

## 3. BIST Application

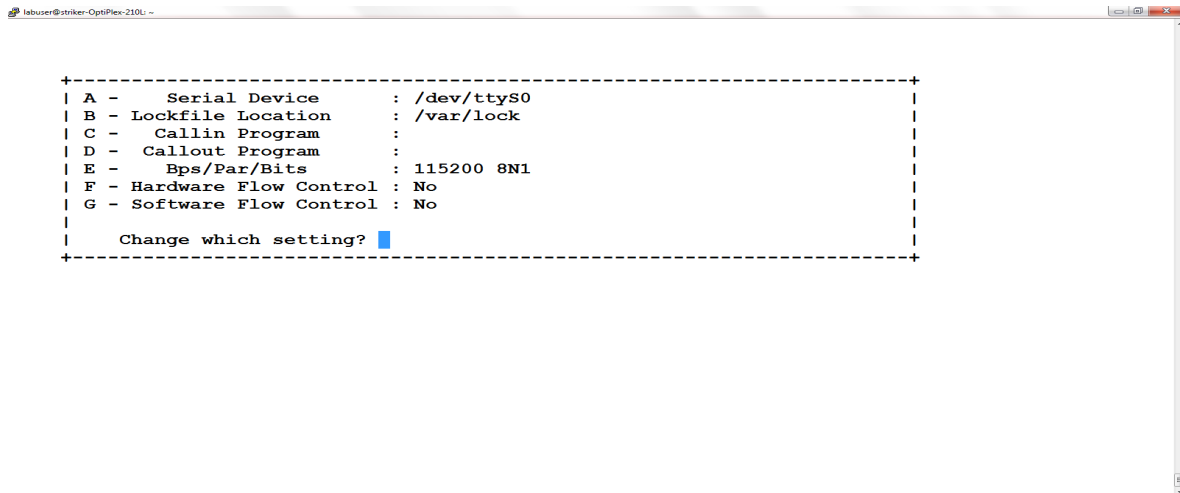
---

### 3.1 Pre-requisites

- CGW450 Console Setup

#### 3.1.1 CGW450 Debug Console Setup

- Use minicom or Teraterm software to access the CGW450 Console and use the below serial port settings.



```
labuser@striker-OptiPlex-210L: ~
+-----+
| A -   Serial Device       : /dev/ttyS0
| B -   Lockfile Location   : /var/lock
| C -   Callin Program      :
| D -   Callout Program     :
| E -   Bps/Par/Bits        : 115200 8N1
| F -   Hardware Flow Control : No
| G -   Software Flow Control : No
|
| Change which setting? █
+-----+
```

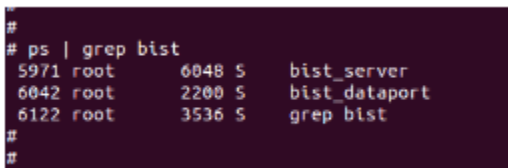
**Figure 3-1: Debug Console Setup**

## 3.2 BIST Server and Data Port Application

This section explains how BIST server and data port applications are started at target side.

BIST server and data port application will be started only if the data port (/dev/ttyUSB0) connection is detected between Host and RG. The BIST server and data port running status shown as below.

- # ps | grep bist



```
#
# ps | grep bist
5971 root      6048 S      bist_server
6042 root      2200 S      bist_dataport
6122 root      3536 S      grep bist
#
#
```

**Figure 3-2: BIST Server and Data Port Running Status****NOTE:**

- USB data port cable needs to be inserted and detected as /dev/ttyUSB0 before system start-up for special mode and limited mode. For Normal mode, connect the USB data port cable after system start-up/bootup. If the USB data port cable is not inserted, BIST server and data port application will be exited.
- USB data port doesn't support Hotplug in BIST special and Limited mode. Re-plug of the data port won't work in Special and Limited mode if user already in the Special and Limited mode. CGW450 must restarted to re-initiate the BIST in Special and Limited mode.
- Data port cable should not be removed from the target while running BIST. If it is removed data port application will print error message and exits.



### 3.3 BIST Client Application

This section explains how to run the BIST client application in the external Linux host machine. Following is the BIST Client package.

BIST client application will use /dev/ttyS0 device as data port on Host side. If Serial-USB converter is used at HOST PC end, In the host device file will be created as /dev/ttyUSB0. Use below command to create symbolic link between /dev/ttyS0 and /dev/ttyUSB0.

- `sudo rm -rf /dev/ttyS0`
- `sudo ln -sf /dev/ttyUSB0 /dev/ttyS0`

**Package:** `bist_client_1.0.tar.gz` (This is a separate package and it will be part of BIST software release)

- `bist_client` is a tar-gzip package  
`bist_client_1.0.tar.gz`

#### **BIST Client Package Installation Command**

Copy the `bist_client` tar-gz file to /bin directory of host

```
# cd /bin
# sudo tar -zxvf bist_client_1.0.tar.gz
```

Following is the list of applications/scripts are part of the Gzip package.

- **`bist_client`** - BIST client application to run the BIST test cases
- **`run_bist.sh`** - Script to run the menu based BIST test cases and it will start the BIST client in Normal mode. Please refer section 3.3.3 to configure the special mode.

Mode Change:

- Changing mode from special mode to normal mode
- From step 1-3, perform in CGW450
- Step 1: login in CGW450
- Step 2: NOS/XE15A2130A0001>magic
- NOS/XE15A2130A0001/magic>!
- Step 3: `lsmod | grep pl23` //for checking USBSerial ports connected to CGW450
- `rmmod pl2303`
- Step 4: `modprobe pl2303`
- Step 4: Go to Linux host machine, untar the `bist_client` tar file & run `./run_bist.sh`



```
Info rc: 2497 unknown device band type 7
Info: start_hapd_wpasupp_per_radio hostapd is running pid=5399, radio_idx=2

Supplicant, client cert initialization returned error. Terminating eap_tls_peer process
OpenSSL 1.1.1k 25 Mar 2021
writing RSA key

starting pid 5899, tty '': '/bin/cshell'le.

login: admin
Password:

Terminal shell v1.0
© 2016-2021 AT&T Intellectual Property. All rights reserved. AT&T and Globe logo are regis
© 2016 ARRIS Enterprises LLC. All rights reserved. ARRIS is a registered trademark of ARRI
CGW150 Active-Ethernet/G-PON/XGS-PON capable AnnexA Ethernet
Running AT&T Turquoise4912 version 4.14.1
(admin completed login: Admin account with read/write access.)

NOS/XE15A2130A0001> magic

Warning: Accessing these commands is restricted, and will affect normal
operation of this device. Exit now if you entered by mistake.

NOS/XE15A2130A0001/DEBUG/MAGIC> !

# rmmmod pl2303
# modprobe pl2303
# rm: can't remove '/var/tmp/channel_count_stat_file 2p4': No such file or directory
rm: can't remove '/var/tmp/channel_count_stat_file 5lower': No such file or directory
```

### 3.3.1 Start the BIST Client using run\_bist.sh

This section explains how to start the run\_bist.sh in Ubuntu Linux host machine. The run\_bist.sh will be part of BIST client package mentioned in the above section. The script will be available in /bin/ in Ubuntu Linux host machine.



```
+-----+
+  AT&T BIST SOFTWARE - Broadband Gateway  +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL_MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:1D:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     |
|                   CGW450 SPECIAL BIST MAIN MENU                   |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test           |
| 2 | Control Test           | 13 | USB Test               |
| 3 | Ethernet Test          | 14 | PON Test               |
| 4 | FLASH Test             | 15 | Client Test            |
| 5 | LogCopy Test           | 16 | LED Test               |
| 6 | SDRAM Test             | 17 | PCM Test               |
| 7 | Network Test           | 18 | TILT SENSOR test       |
| 8 | Temperature Test       | 19 | Cellular Test          |
| 9 | WiFi Test              | 20 | Run All Test           |
| 10 | SFP Test              | 21 | Display summary        |
| 11 | RedButtonReset Test   | 22 | LED MATRIX TEST        |
+-----+
|                                     |
|                                     | 0 | EXIT                   |
+-----+
Please Enter Test to Execute:█
```

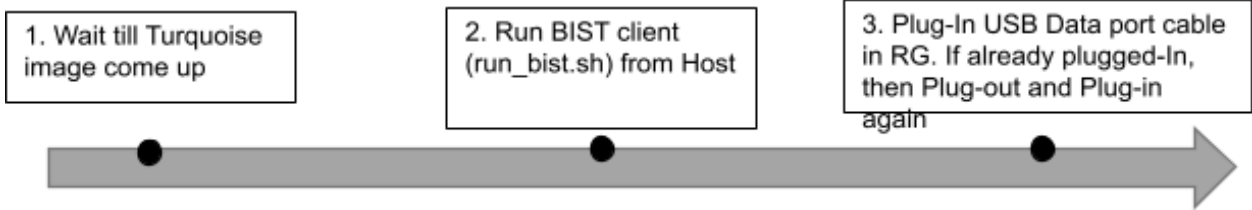


```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:10:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     |
|               CGW450 SPECIAL BIST MAIN MENU               |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test         |
|-----|-----|
| 2 | Control Test           | 13 | USB Test               |
|-----|-----|
| 3 | Ethernet Test          | 14 | PON Test               |
|-----|-----|
| 4 | FLASH Test             | 15 | Client Test            |
|-----|-----|
| 5 | LogCopy Test           | 16 | LED Test               |
|-----|-----|
| 6 | SDRAM Test             | 17 | PCM Test               |
|-----|-----|
| 7 | Network Test           | 18 | TILT SENSOR test       |
|-----|-----|
| 8 | Temperature Test       | 19 | Cellular Test          |
|-----|-----|
| 9 | WiFi Test              | 20 | Run All Test           |
|-----|-----|
| 10 | SFP Test               | 21 | Display summary        |
|-----|-----|
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST        |
|-----|-----|
| |                           | 0  | EXIT                   |
+-----+
Please Enter Test to Execute: |
```

Figure 3-3: run\_bist.sh Script

### 3.3.2 BIST Normal Mode

After CGW450 is up, execute BIST client using run\_bist.sh script from Host machine and then insert the USB data port cable in RG to enter to BIST normal mode.

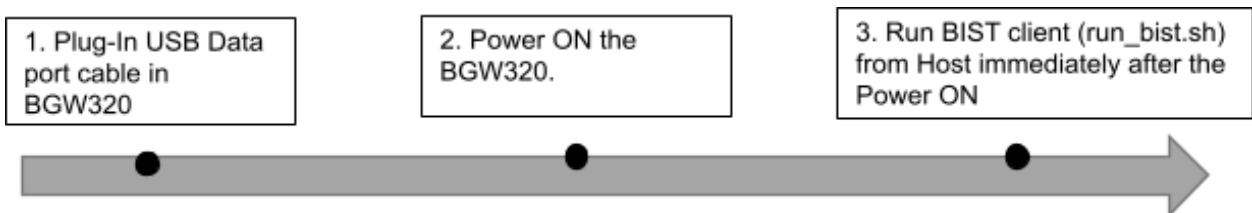


 **NOTE:** After bootup, run BIST client and then insert USB data port cable to make the data port and server run in normal mode.

### 3.3.3 BIST Special Mode

During system start-up, execute BIST client using run\_bist.sh script from Host machine and plug-in USB data port cable in RG.

Either run\_bish.sh script can be executed or "sudo ./bist\_client connect 90" host command can be executed to enter into Limited mode during boot-up.

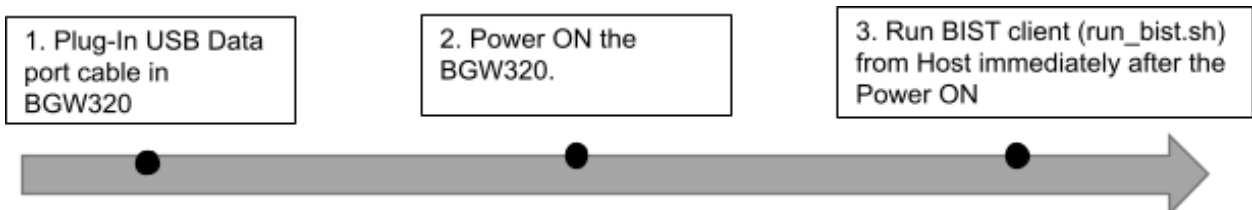


 **NOTE:** The run bist script (run\_bist.sh) or "sudo ./bist\_client connect 90" command should also be run during start-up to enter limited mode.

### 3.3.4 BIST Limited Mode

To run bist commands in limited mode, during bootup, execute BIST client using run\_bist.sh script from Host machine and plug-in USB data port cable in RG. The following commands are supported in BIST limited mode.

Either run\_bish.sh script can be executed or "sudo ./bist\_client connect 90" host command can be executed to enter into Limited mode during boot-up.



 **NOTE:** The run bist script (run\_bist.sh) or "sudo ./bist\_client connect 90" command should also be run during start-up to enter limited mode.

Turquoise production build supports only BIST limited mode.



Below commands are supported in BIST limited mode

1. flashUpdate - To update the Turquoise image
2. ClientGetSecMode - To get the SoC secure Mode
3. ClientGetSecImageInfo - To get the Image type programmed in flash partitions
4. ClientGetJtagOtpLockStatus - To get the JTAG lock status
5. ClientGetOtpCustLockStatus - To get the OTP lock status
6. CellularDeviceInfo - To get details of cellular modem like model, software version and device status.

### 3.3.4.1 Flash Update

This section explains how to update the Image from BIST client in production builds.

**Command:**

flashUpdate - Transfer binary via TFTP and update

TFTP server needs to be run on Host machine. Copy the Upgradable image to root path of TFTP server in host. Establish Ethernet connection and data port connection between RG and Host machine. Host machine LAN port IP address should be 192.168.1.100.

Execute below command from bist\_client

```
./bist_client flashUpdate http <file name>
```

BIST will download the image from Host (192.168.1.100) using tftp protocol, image will be written to respective eMMC flash partitions.



**PRE-REQUISITE:** tftp servers should be configured in Host machine.

Upgradable image should be copied in to root path of http server. Host IP address should be 192.168.1.100



**NOTE:** After upgrade, the RG will go for a reboot.



```
| 1 | FLASH Test | 3 | Cellular Test |
| 2 | Client Test | 0 | Exit |
-----
Please Enter Test to Execute:1
-----
FLASH TEST
-----
| 1 | flashUpdate | 0 | Return to main menu |
-----
Please Enter Test to Execute:1
-----
=====
| The system will go for reboot after this test. |
=====
Do you want to continue this test?[yes - continue, no - quit]:
yes
Enter Image Name:spTurquoise450-400_4.19.2_sec_tk_1.1.bin

File transfer in progress....

Image Flashing Starting....

BIST TEST RESULT: flashUpdate: PASSED
```

Figure 3-4: Flash Update in Limited Mode

### 3.3.4.2 Secure Type Get Commands

Commands to read the SoC secure Mode whether it is Field / MFG / Un Secure or not:

```
./bist_client ClientGetSecMode
```

Commands to read whether the image present in primary and backup partitions is secure or not:

```
./bist_client ClientGetSecImageInfo <partition>
```

<partition>: 1 - Partition 1

2 - Partition 2

### 3.3.4.3 JTAG/OTP lock status Get Commands

Commands to read the SoC JTAG lock status,

```
./bist_client ClientGetJtagOtpLockStatus
```

Commands to read the SoC OTP lock status,

```
./bist_client ClientGetOtpCustLockStatus
```

### 3.3.4.4 Cellular Device Information

Commands to get the details of cellular modem model name, software version and device status

```
./bist_client CellularDeviceInfo
```



## 3.4 BIST Run Levels

There are two levels in BIST Application.

1. Run All Test
2. Run Individual Test

### 3.4.1 Run All Tests

This test is used to run all test cases supported for RG. User can run all the subtest of individual test case.

### 3.4.2 Run Individual Tests

This test is used to run each test case individually. If subtest is available for each test, it will display submenu for the test where the user shall also run all the subtests for the test. In addition, the summary result of individual test should be displayed as shown in Figure 3-5. User shall give "0" for returning to main menu.



```
+-----+
|                                     BOX INFO TEST                                     |
+-----+
| 1 | boxCapAVS                       | 4 | boxReboot                         |
+-----+
| 2 | boxGetAVSVoltage                 | 5 | Run All box tests                 |
+-----+
| 3 | boxGetCPUUsage                   | 0 | Return to main menu                 |
+-----+
Please Enter Test to Execute:5
+-----+
|                                     BOX INFO TEST                                     |
+-----+

AVS is supported

BIST TEST RESULT: boxCapAVS: PASSED
+-----+
Voltage(mV):915

BIST TEST RESULT: boxGetAVSVoltage: PASSED
+-----+
CPUUsage:2%

BIST TEST RESULT: boxGetCPUUsage: PASSED
=====
                        BIST TEST REPORT
=====
boxCapAVS                                     : PASSED
boxGetAVSVoltage                             : PASSED
boxGetCPUUsage                               : PASSED
+-----+
|          DISPLAYING SUMMARY OF EXECUTION          |
+-----+
Total Number of Test cases executed :3
Test cases passed                    :3
Test cases InProgress                :0
Test cases failed                    :0
Not supported test cases              :0

See complete summary in /tmp/bist/summary.txt
```

Figure 3-5: Running Individual All Tests

# Chapter

# 4

## 4. BIST Menu Based Test Commands

---

### 4.1 BOX Test Commands

**Test Command Description:**

This test is executed to get information about the box. Enter Box test case number 1 in Ubuntu Linux Host. and it will display the following menu for Box test case as in Figure 4-1.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:10:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     |
|               CGW450 SPECIAL BIST MAIN MENU               |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test          |
|-----|-----|
| 2 | Control Test           | 13 | USB Test                |
|-----|-----|
| 3 | Ethernet Test          | 14 | PON Test                |
|-----|-----|
| 4 | FLASH Test             | 15 | Client Test             |
|-----|-----|
| 5 | LogCopy Test           | 16 | LED Test                |
|-----|-----|
| 6 | SDRAM Test             | 17 | PCM Test                |
|-----|-----|
| 7 | Network Test           | 18 | TILT SENSOR test        |
|-----|-----|
| 8 | Temperature Test       | 19 | Cellular Test           |
|-----|-----|
| 9 | WiFi Test              | 20 | Run All Test            |
|-----|-----|
| 10 | SFP Test              | 21 | Display summary         |
|-----|-----|
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST         |
|-----|-----|
|                                     |
|                                     | 0 | EXIT                    |
|-----|-----|
Please Enter Test to Execute: |
```

Figure 4-1: Box Test Commands

### 4.1.1 boxCapAVS

**Test Command Description:**

This test case is executed to check AVS support is enabled or not. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in the Ubuntu Linux host. The boxCapAVS will be executed and the result will be displayed as shown in Figure 4-2.

**Test Pre-requisites:** NA

**Test Mode:** Normal and Special Mode

**Test Screenshot:**



```
+-----+
|                                     BOX INFO TEST                                     |
+-----+
| 1 | boxCapAVS                       | 5 | Get BIST Version Test                       |
+-----+
| 2 | boxGetAVSVoltage                 | 6 | Get Model Test                               |
+-----+
| 3 | boxGetCPUUsage                   | 7 | Run All box tests                             |
+-----+
| 4 | boxReboot                       | 0 | Return to main menu                           |
+-----+
Please Enter Test to Execute:1

AVS is supported

BIST TEST RESULT: boxCapAVS:PASSED
+-----+
```

Figure 4-2: boxCapAVS Command

### 4.1.2 boxGetAVSVoltage

**Test Command Description:**

This test case is executed to check AVS support is enabled or not. Enter the subtest case number as "2" in Normal Mode or subtest case number as "2" in Special Mode in the Ubuntu Linux host . The boxGetAVSVoltage will be executed and the result will be displayed as shown in Figure 4-3.

**Test Pre-requisites:** NA

**Test Mode:** Normal and Special Mode

```
+-----+
|                                     BOX INFO TEST                                     |
+-----+
| 1 | boxCapAVS                       | 5 | Get BIST Version Test                       |
+-----+
| 2 | boxGetAVSVoltage                 | 6 | Get Model Test                               |
+-----+
| 3 | boxGetCPUUsage                   | 7 | Run All box tests                             |
+-----+
| 4 | boxReboot                       | 0 | Return to main menu                           |
+-----+
Please Enter Test to Execute:2
Voltage(mV):722

BIST TEST RESULT: boxGetAVSVoltage:PASSED
+-----+
```

Figure 4-3: boxGetAVSVoltage Command



### 4.1.3 boxGetCPUUsage

**Test Command Description:**

This test case is executed to check that upon executing boxGetCPUUsage the CPU usage is returned. Enter the subtest case number as "3" in Normal Mode or subtest case number as "3" in Special Mode in the Ubuntu Linux host . The boxGetCPUUsage test will be executed and the result will be displayed as shown in Figure 4-4.

**Test Pre-requisites:** NA**Test Mode:** Normal and Special Mode**Test Screenshot:**

```
+-----+
|                BOX INFO TEST                |
+-----+
| 1 | boxCapAVS                               | 5 | Get BIST Version Test |
+-----+
| 2 | boxGetAVSVoltage                         | 6 | Get Model Test       |
+-----+
| 3 | boxGetCPUUsage                           | 7 | Run All box tests    |
+-----+
| 4 | boxReboot                               | 0 | Return to main menu  |
+-----+
Please Enter Test to Execute:3
CPUUsage:2%
BIST TEST RESULT: boxGetCPUUsage:PASSED
```

Figure 4-4: boxGetCPUUsage Command

### 4.1.4 boxReboot

**Test Command Description:**

This test is used check that the target reboots successfully upon giving boxReboot command. Enter the subtest case number as "4" in Special Mode in the Ubuntu Linux Host. As the CGW450 will reboot after completion of this test, a confirmation should be entered in the Linux Host. As an input to this confirmation, enter "yes" to run the test or "no" to exit the test. The boxReboot test will be executed and the result will be displayed as shown in Figure 4-5.

**Test Pre-requisites:** NA**Test Mode:** Special Mode**Test Screenshot:**



```
+-----+
|                                     BOX INFO TEST                                     |
+-----+
| 1 | boxCapAVS                       | 5 | Get BIST Version Test           |
+-----+
| 2 | boxGetAVSVoltage                 | 6 | Get Model Test                   |
+-----+
| 3 | boxGetCPUUsage                   | 7 | Run All box tests                 |
+-----+
| 4 | boxReboot                       | 0 | Return to main menu               |
+-----+
Please Enter Test to Execute:4
#####
CAUTION : Box will reboot now....
#####

Do you want to continue this test?[yes - continue, no - quit]:
yes

BIST TEST RESULT: boxReboot:PASSED
Rebooting the board...
+-----+
```

Figure 4-5: boxReboot Test

### 4.1.5 Get BIST Version Test

**Test Command Description:**

This test case is executed to get the BIST version. Enter the subtest case number as "4" in Normal Mode or subtest case number as "5" in Special Mode in the Ubuntu Linux Host. The Get BIST version test will be executed and the result will be displayed as shown in Figure 4-6.

**Test Pre-requisites:** NA

**Test Mode:** Normal and Special Mode

**Test Screenshot:**

```
+-----+
|                                     BOX INFO TEST                                     |
+-----+
| 1 | boxCapAVS                       | 5 | Get BIST Version Test           |
+-----+
| 2 | boxGetAVSVoltage                 | 6 | Get Model Test                   |
+-----+
| 3 | boxGetCPUUsage                   | 7 | Run All box tests                 |
+-----+
| 4 | boxReboot                       | 0 | Return to main menu               |
+-----+
Please Enter Test to Execute:5
BIST Version:1.0

BIST TEST RESULT: bistGetVersion:PASSED
+-----+
```

Figure 4-6: Get BIST Version Test



## 4.1.6 Get Model Test

### **Test Command Description:**

This test case is executed to get the hardware model. Enter the subtest case number as "5" in Normal Mode or subtest case number as "6" in Special Mode in the Ubuntu Linux Host. The Get model test will be executed and the result will be displayed as shown in Figure 4-7.

### **Test Pre-requisites:** NA

**Test Mode:** Normal and Special Mode

### **Test Screenshot:**

```
Please Enter Test to Execute:1
+-----+
|                BOX INFO TEST                |
+-----+
| 1 | boxCapAVS                                | 5 | Get Model Test          |
+-----+
| 2 | boxGetAVSVoltage                         | 6 | Run All box tests       |
+-----+
| 3 | boxGetCPUUsage                           | 0 | Return to main menu     |
+-----+
| 4 | Get BIST Version Test                    |
+-----+
Please Enter Test to Execute:5
Model:CGW450_400_SGD
BIST TEST RESULT: getModel:PASSED
```

Figure 4-7: Get Model Test

## 4.1.7 Run All box Tests

### **Test Command Description:**

This test is used to run all the box tests. Enter the subtest case number as "6" in Normal Mode or subtest case number as "7" in Special Mode in the terminal. The test will run all the box tests and display the summary result as shown in Figure 4-8 after it completes.

### **Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**



```
=====+
Please Enter Test to Execute:6
=====+
|                               BOX INFO TEST                               |
=====+

AVS is supported

BIST TEST RESULT: boxCapAVS:PASSED
=====+
Voltage(mV):719

BIST TEST RESULT: boxGetAVSVoltage:PASSED
=====+
CPUUsage:6%

BIST TEST RESULT: boxGetCPUUsage:PASSED
=====+
BIST Version:1.0

BIST TEST RESULT: bistGetVersion:PASSED
=====+
HW Model = CGW450_400_SGD
Model:CGW450_400_SGD

BIST TEST RESULT: getModel:PASSED
=====+
|                               BIST TEST REPORT                               |
=====+
boxCapAVS                                     : PASSED
boxGetAVSVoltage                             : PASSED
boxGetCPUUsage                               : PASSED
bistGetVersion                               : PASSED
getModel                                     : PASSED
=====+
|                               DISPLAYING SUMMARY OF EXECUTION                               |
=====+
Total Number of Test cases executed :5
Test cases passed                    :5
Test cases InProgress                :0
Test cases failed                    :0
Not supported test cases              :0

See complete summary in /tmp/bist/summary.txt
```

Figure  
Run  
box  
Tests

```
=====+
|                               BIST TEST REPORT                               |
=====+
boxCapAVS                                     : PASSED
boxGetAVSVoltage                             : PASSED
boxGetCPUUsage                               : PASSED
bistGetVersion                               : PASSED
getModel                                     : PASSED
=====+
|                               DISPLAYING SUMMARY OF EXECUTION                               |
=====+
Total Number of Test cases executed :5
Test cases passed                    :5
Test cases InProgress                :0
Test cases failed                    :0
Not supported test cases              :0

See complete summary in /tmp/bist/summary.txt
=====+
```

4-8:  
All



## 4.2 Control/UART Test Commands

**Test Command Description:**

This test is used to check the functionalities of control/UART. Enter Control/UART test case number as 2 in the Ubuntu Linux Host. and it will display the following menu for Control/UART test case as in Figure 4-9.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG      |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132 |
| HW Version           | 1.2(BCRM6813)  |
| MAC ADDRESS          | 38:B8:00:10:E4:44 |
| WIFI SSID            | ATT64rqCS2     |
| WIFI PASSWORD        | gb5a6k2hk#nn   |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     |
|               CGW450 SPECIAL BIST MAIN MENU               |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test          |
|-----|-----|
| 2 | Control Test           | 13 | USB Test                |
|-----|-----|
| 3 | Ethernet Test          | 14 | PON Test                |
|-----|-----|
| 4 | FLASH Test             | 15 | Client Test             |
|-----|-----|
| 5 | LogCopy Test           | 16 | LED Test                |
|-----|-----|
| 6 | SDRAM Test             | 17 | PCM Test                |
|-----|-----|
| 7 | Network Test           | 18 | TILT SENSOR test        |
|-----|-----|
| 8 | Temperature Test       | 19 | Cellular Test           |
|-----|-----|
| 9 | WiFi Test              | 20 | Run All Test            |
|-----|-----|
| 10 | SFP Test              | 21 | Display summary         |
|-----|-----|
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST        |
|-----|-----|
|                                     |
|                                     | 0 | EXIT                    |
+-----+
Please Enter Test to Execute: |
```

Figure 4-9: Control/UART Tests

## 4.2.1 controlCapBuild

### Test Command Description:

This command is used to test the control capabilities. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in the terminal. The controlCapBuild test will be executed and the result will be displayed as shown in Figure 4-10.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|               CONTROL TEST               |
+-----+
| 1 | controlCapBuild                       | 4 | Run all Control tests |
+-----+
| 2 | controlSetRS232Speed                   | 0 | Return to main menu  |
+-----+
| 3 | controlRunScript                       |                          |
+-----+
Please Enter Test to Execute:1
BuildBIST:debug
Source:flash

BIST TEST RESULT: controlCapBuild:PASSED
```

Figure 4-10: controlCapBuild Command

## 4.2.2 controlSetRS232Speed

### Test Command Description:

This test case is executed to check that upon executing controlSetRS232Speed the terminal baud rate should be set to the value passed as an argument. The value is high which corresponds to 115200bps. Enter the subtest case number as "2" in Normal Mode or subtest case number as "2" in Special Mode in the terminal.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
+-----+
|               CONTROL TEST               |
+-----+
| 1 | controlCapBuild                       | 4 | Run all Control tests |
+-----+
| 2 | controlSetRS232Speed                   | 0 | Return to main menu  |
+-----+
| 3 | controlRunScript                       |                          |
+-----+
Please Enter Test to Execute:2

RS232 speed is set to 115200 successfully

BIST TEST RESULT: controlSetRS232Speed:PASSED
```

Figure 4-11: controlSetRS232Speed Command

## 4.2.3 controlRunScript

### Test Command Description:



This test case is executed to check that upon executing controlRunScript the script file present in USB is successfully executed. Enter the subtest case number as "3" in Normal Mode or subtest case number as "3" in Special Mode in the terminal. The controlRunScript test will be executed and the result will be displayed as shown in Figure 4-12.

**Test Pre-requisites:** USB has to be inserted in USB port(s). The name of the script file present in USB should be 'bist\_test.sh'

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
|                                     |
|                               CONTROL TEST                               |
|-----+-----+
| 1 | controlCapBuild                | 4 | Run all Control tests |
|-----+-----+
| 2 | controlSetRS232Speed            | 0 | Return to main menu  |
|-----+-----+
| 3 | controlRunScript                |                               |
|-----+-----+
Please Enter Test to Execute:3

Result:0
Delay:1

BIST TEST RESULT: controlRunScript:PASSED
+-----+
```

Figure 4-12: controlRunScript Command

## 4.2.4 Run All Control/UART Tests

**Test Command Description:**

This test is used to run all Control/UART test cases. Enter subtest case number as "4" in Normal Mode or subtest case number as "4" in Special Mode in Ubuntu Linux Host. All Control/UART tests will be run and the result will be displayed as shown in Figure 4-13.

**Test Pre-requisites:** USB has to be inserted in USB port(s). The name of the script file present in USB should be 'bist\_test.sh'

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
Please Enter Test to Execute:4

+-----+
|                                     |
|                               CONTROL TEST                               |
|                                     |
+-----+
BuildBIST:debug
Source:flash

BIST TEST RESULT: controlCapBuild:PASSED
+-----+

RS232 speed is set to 115200 successfully

BIST TEST RESULT: controlSetRS232Speed:PASSED
+-----+
Result:0
Delay:2

BIST TEST RESULT: controlRunScript:PASSED
+-----+
=====
                        BIST TEST REPORT
=====
controlCapBuild                                : PASSED
controlSetRS232Speed [ high ]                  : PASSED
controlRunScript [ bist_test.sh ]              : PASSED
+-----+
|                DISPLAYING SUMMARY OF EXECUTION                |
+-----+
Total Number of Test cases executed :3
Test cases passed                    :3
Test cases InProgress                :0
Test cases failed                    :0
Not supported test cases             :0

See complete summary in /tmp/bist/summary.txt
+-----+
```

Figure 4-13: Run All Control/UART Tests

## 4.3 Flash Test Commands

### **Test Command Description:**

This test is used to check all the functionalities of flash. Enter Flash test case number as "4" in the Ubuntu Linux Host. It will display sub menu for Flash tests as shown in Figure 4-18.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:10:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     |
|               CGW450 SPECIAL BIST MAIN MENU               |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test          |
|-----|-----|
| 2 | Control Test           | 13 | USB Test                |
|-----|-----|
| 3 | Ethernet Test          | 14 | PON Test                |
|-----|-----|
| 4 | FLASH Test             | 15 | Client Test             |
|-----|-----|
| 5 | LogCopy Test           | 16 | LED Test                |
|-----|-----|
| 6 | SDRAM Test             | 17 | PCM Test                |
|-----|-----|
| 7 | Network Test           | 18 | TILT SENSOR test        |
|-----|-----|
| 8 | Temperature Test       | 19 | Cellular Test           |
|-----|-----|
| 9 | WiFi Test              | 20 | Run All Test            |
|-----|-----|
| 10 | SFP Test               | 21 | Display summary         |
|-----|-----|
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST         |
|-----|-----|
|                                     | 0 | EXIT                    |
+-----+
Please Enter Test to Execute: |
```

Figure 4-18: Flash Test Commands

### 4.3.1 flashCapeMMC

**Test Command Description:**

This test case is used to check the presence of eMMC Flash. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in the Ubuntu Linux host. The flashCapeMMC test will be executed and the result will be displayed as shown in Figure 4-19.

**Test Pre-requisites:** NA**Test Mode:** Special Mode and Normal Mode**Test Screenshot:**



```
+-----+
|                                     |
|                                     | FLASH TEST |
|                                     |
+-----+
| 1 | flashCapeMMC                   | 4 | Run all FLASH tests |
+-----+
| 2 | flashGetBlockData               | 0 | Return to main menu   |
+-----+
| 3 | flashBlockTest                 |
+-----+
Please Enter Test to Execute:1

eMMC Flash is present /dev/mmcblk0
eMMC Flash is present

BIST TEST RESULT: flashCapeMMC: PASSED
```

Figure 4-19: flashCapeMMC Test Commands

### 4.3.2 flashGetBlockData

#### Test Command Description:

This test case is used to get the number of blocks present in the Flash device along with the number of bad blocks. Enter the subtest case number as "2" in Normal Mode or subtest case number as "2" in Special Mode in the Ubuntu Linux host. The flashGetBlockData test will be executed and the result will be displayed as shown in Figure 4-20.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
|                                     |
|                                     | FLASH TEST |
|                                     |
+-----+
| 1 | flashCapeMMC                   | 4 | Run all FLASH tests |
+-----+
| 2 | flashGetBlockData               | 0 | Return to main menu   |
+-----+
| 3 | flashBlockTest                 |
+-----+
Please Enter Test to Execute:2
TotalBlocks:7468036
BadBlocks:0

BIST TEST RESULT: flashGetBlockData: PASSED
```

Figure 4-20: flashGetBlockData Test

### 4.3.3 flashBlockTest

#### Test Command Description:



Enter the subtest case number as "3" in Special Mode in the terminal. As the CGW450 will reboot after completion of this test, a confirmation should be entered in the Linux Host. As an input to this confirmation, enter "yes" to run the test or "no" to exit the test. The flashBlockTest will be executed and the result will be displayed as shown in Figure 4-21.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
+-----+
|                                     FLASH TEST                                     |
+-----+
| 1 | flashCapeMMC                    | 4 | Run all FLASH tests                    |
+-----+
| 2 | flashGetBlockData                | 0 | Return to main menu                    |
+-----+
| 3 | flashBlockTest                  |                                     |
+-----+
Please Enter Test to Execute:3

block size 512
File size 0xc800 (51200)
Comparison is success
Test completed successfully

BIST TEST RESULT: flashBlockTest:PASSED
+-----+
```

Figure 4-21: Flash Block Tests

### 4.3.4 flashUpdateTest

**Test Command Description:**

Enter the subtest case number as "3" in Normal Mode in the terminal. As the CGW450 will reboot after completion of this test, a confirmation should be entered in the Linux Host. As an input to this confirmation, enter "yes" to run the test or "no" to exit the test. The flashBlockTest will be executed and the result will be displayed as shown in Figure 4-21.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

**Output on Bist client side:**



```
Please Enter Test to Execute:4
+-----+
|                                     FLASH TEST                                     |
+-----+
| 1 | flashCapeMMC                    | 4 | Run all FLASH tests                    |
+-----+
| 2 | flashGetBlockData                | 0 | Return to main menu                    |
+-----+
| 3 | flashUpdate                      |                                     |
+-----+
Please Enter Test to Execute:3

=====
|           The system will go for reboot after this test.           |
=====
Do you want to continue this test?[yes - continue, no - quit]:
yes
Enter Image Name:Turquoise450-400_4.19.5_1.6_2608220121.bin
Enter IP Address of tftpserver:192.168.1.100
```

**Output on RG side:**

```
#
File transfer in progress....
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100   318   100   318    0    0  76021      0  --:--:-- --:--:-- --:--:--   103k
Image Flashing Starting....
```

**Figure 4-22: Flash Block Tests****Verification:**

Verification can be done by checking the image version using sh up before and after the BIST FlashUpdate test. Please refer the following screenshots for reference.

Before executing the command



```
NOS/X94EA2GV000199/DEBUG/MAGIC> sh up

Upgrade Status           : Success
Rollback Status          : NA
Active Image Version      : 4.19.5
Backup Image Version      : 4.19.5
Current Active           : Partition1
Image Status             : Committed
Max Image Install Count   : 3
Download Failure Error   : No Error
Upgrade Failure Error    : No Error
Rollback Failure Error   : No Error
Number of Upgrade Fail Attempts : 0
Number of Rollback Fail Attempts : 0
Partition 1
=====
Downloaded Time: Thu Jan 1 00:21:10 1970
Upgraded Time   : Thu Jan 1 00:01:40 1970
Rollback Time   : Thu Jan 1 00:01:38 1970
Partition 2
=====
Downloaded Time: Thu Jan 1 00:17:02 1970
Upgraded Time   : Thu Jan 1 00:01:40 1970
Rollback Time   : Thu Jan 1 00:01:38 1970
```

After executing the command

```
NOS/X94EA2GV000199> sh up

Upgrade Status           : Success
Rollback Status          : NA
Active Image Version      : 4.19.5_1.6_2608220121
Backup Image Version      : 4.19.5
Current Active           : Partition2
Image Status             : Committed
Max Image Install Count   : 3
Download Failure Error   : No Error
Upgrade Failure Error    : No Error
Rollback Failure Error   : No Error
Number of Upgrade Fail Attempts : 0
Number of Rollback Fail Attempts : 0
Partition 1
=====
Downloaded Time: Thu Jan 1 00:21:10 1970
Upgraded Time   : Thu Jan 1 00:01:40 1970
Rollback Time   : Thu Jan 1 00:01:38 1970
Partition 2
=====
Downloaded Time: Thu Jan 1 01:53:13 1970
Upgraded Time   : Thu Jan 1 00:01:37 1970
Rollback Time   : Thu Jan 1 00:01:38 1970
```

**Note:**

Since after successful image upgrade bist server loses connection with BIST client in **NORMAL MODE**, we cannot receive the pass signal to BIST client from server, so it is expected that BIST does not display **PASSED** state on the client side. Verification can be done as above using **sh up** magic command.

### 4.3.5 Run All Flash Tests

**Test Command Description:**

This test is used to run all Flash test cases. Enter subtest case "3" in Normal Mode or subtest case number as "5" in Special mode in the Ubuntu Linux Host. All Flash tests will be run, and the result will be displayed as shown in Figure 4-22.

**Test Pre-requisites:** NA



**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
| 1 | flashCapeMMC | 4 | Run all FLASH tests |
+-----+
| 2 | flashGetBlockData | 0 | Return to main menu |
+-----+
| 3 | flashBlockTest |
+-----+
Please Enter Test to Execute:4

Running all Flash tests
+-----+
| FLASH TEST |
+-----+

eMMC Flash is present /dev/mmcblk0
eMMC Flash is present

BIST TEST RESULT: flashCapeMMC:PASSED
+-----+
TotalBlocks:7468036
BadBlocks:0

BIST TEST RESULT: flashGetBlockData:PASSED
=====
BIST TEST REPORT
=====
flashCapeMMC : PASSED
flashGetBlockData : PASSED
+-----+
| DISPLAYING SUMMARY OF EXECUTION |
+-----+
Total Number of Test cases executed :2
Test cases passed :2
Test cases InProgress :0
Test cases failed :0
Not supported test cases :0

See complete summary in /tmp/bist/summary.txt
+-----+
```

Figure 4-22: Run All Flash Tests

## 4.4 Ethernet Test Commands

**Test Command Description:**

This test is used to check the functionalities of Ethernet interface. Enter Ethernet test case number as 3 in the Ubuntu Linux Host. and it will display the following menu for Ethernet test case as shown in Figure 4-14.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID         | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:1D:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     |
|          CGW450 SPECIAL BIST MAIN MENU          |
|-----|
| 1 | Box Info Test           | 12 | Runner Test           |
|-----|
| 2 | Control Test           | 13 | USB Test                 |
|-----|
| 3 | Ethernet Test          | 14 | PON Test                 |
|-----|
| 4 | FLASH Test             | 15 | Client Test              |
|-----|
| 5 | LogCopy Test           | 16 | LED Test                 |
|-----|
| 6 | SDRAM Test             | 17 | PCM Test                 |
|-----|
| 7 | Network Test           | 18 | TILT SENSOR test         |
|-----|
| 8 | Temperature Test       | 19 | Cellular Test            |
|-----|
| 9 | WiFi Test              | 20 | Run All Test             |
|-----|
| 10 | SFP Test              | 21 | Display summary          |
|-----|
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST          |
|-----|
| 0 | EXIT                   |
+-----+
Please Enter Test to Execute: |
```

**Figure 4-14: Ethernet Test commands**

## 4.5 SDRAM Test Command

**Test Command Description:**

This test is used to verify the read/write operations in the DDR memory in BGW. Enter the test case number as "6" in Normal Mode or subtest case number as "6" in Special Mode in the Ubuntu Linux Host. Limited test will run in Normal Mode. Extended test will run in Special Mode. In Special Mode, Walking test will take around 40 mins to complete. So, it will ask the user input to continue this test. User has to give **yes** to continue else give **no** to exit the test. The SDRAM test will be executed and the result will be displayed as shown from Figure 4-24 to **Error! Reference source not found..**



**Test Pre-requisites: NA**

**Test Mode:** Special Mode and Normal Mode

 **NOTE:** This test will take around 40 mins to complete in special Mode.

**Test Screenshot:**

```
+-----+
Please Enter Test to Execute:6
|               SDRAM/DDR_TEST               |
+-----+

Testing Limited Test Case...
Starting SDRAM Read/Write Test...

Memory To Test: 50 MBMEM TEST Pattern: 0xAABBCCDD
Written value 0xAABBCCDD
Read value 0xAABBCCDD
Pattern Match: OK
Read/Write Test Case: DONE
Starting SDRAM Pattern Test...

Memory To Test: 50 MB
Testing different type of patterns to ensure that memory is not corrupted
Starting Phase 1
MEM TEST Pattern = 0xAAAAAAAA
Please Wait - Test in progress...
.....
Phase 1: SUCCESS
Starting Phase 2
MEM TEST Pattern = 0x55555555
Please Wait - Test in progress...
.....
```

**Figure 4-24: SDRAM Test Command (1)**



```
Starting SDRAM Pattern Test...
Memory To Test: 50 MB
Testing different type of patterns to ensure that memory is not corrupt
Starting Phase 1
MEM TEST Pattern = 0xAAAAAAAA
Please Wait - Test in progress...
.....
Phase 1: SUCCESS
Starting Phase 2
MEM TEST Pattern = 0x55555555
Please Wait - Test in progress...
.....
Phase 2: SUCCESS
Starting Phase 3
MEM TEST Pattern = 0xA5A5A5A5
Please Wait - Test in progress...
.....
Phase 3: SUCCESS
Pattern Test Case: DONE
BIST TEST RESULT: sdramTest: PASSED
+-----+
```

```
.....
Phase 1: SUCCESS
Starting Phase 2
MEM TEST Pattern = 0x55555555
Please Wait - Test in progress...
.....
Phase 2: SUCCESS
Starting Phase 3
MEM TEST Pattern = 0xA5A5A5A5
```



Figure 4-25: SDRAM Test Command (2)

```
Pattern Test Case: DONE

BIST TEST RESULT: sdramTest:PASSED
#####
                Walking test will take around 40 minutes to complete
#####

Do you want to continue this test?[yes - continue, no - quit]:
yes

Memory free: 498740

Memory To Test: 437 MB
Starting Phase 1
MEM TEST Pattern: Walking 1
Phase 1: SUCCESS

Starting Phase 2
MEM TEST Pattern: Walking 0
Phase 2: SUCCESS

Walking Test Case: DONE

BIST TEST RESULT: sdramTest:PASSED
```



## 4.5.1 Run all Temperature tests

### Test Command Description:

This test is used to run all Temperature test cases. Enter subtest case number as "4" in Normal Mode or subtest case number as "5" in Special Mode in Ubuntu Linux Host. The run all temperature test will be executed and the result will be displayed as shown in Figure 4-53.

### Test Pre-requisites: NA

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
+-----+
=====
                        BIST TEST REPORT
=====
temperatureCapSensors                               : PASSED
temperatureGetCurrent [ cpu ]                       : PASSED
temperatureGetCurrent [ wifi_2GHz ]                  : PASSED
temperatureGetCurrent [ wifi_5GHz ]                  : PASSED
temperatureGetCurrent [ wifi_5GHz ]                  : PASSED
temperatureGetLimits [ cpu ]                         : PASSED
temperatureGetLimits [ wifi_2GHz ]                   : PASSED
temperatureGetLimits [ wifi_5GHz ]                   : PASSED
temperatureGetLimits [ wifi_6GHz ]                   : PASSED
temperatureTest [ cpu warning ]                      : PASSED
temperatureTest [ cpu shutdown ]                     : PASSED
temperatureTest [ cpu custom 90 ]                    : PASSED
temperatureTest [ wifi_2GHz warning ]                : PASSED
temperatureTest [ wifi_2GHz shutdown ]               : PASSED
temperatureTest [ wifi_5GHz warning ]                : PASSED
temperatureTest [ wifi_5GHz shutdown ]               : PASSED
temperatureTest [ wifi_6GHz warning ]                : PASSED
temperatureTest [ wifi_6GHz shutdown ]               : PASSED
+-----+
|          DISPLAYING SUMMARY OF EXECUTION          |
+-----+
Total Number of Test cases executed :18
Test cases passed                   :18
Test cases InProgress               :0
Test cases failed                   :0
Not supported test cases            :0

See complete summary in /tmp/bist/summary.txt
+-----+
```

Figure 4-53: Run All Temperature Tests



## 4.5.2 ethernetCapPresent

### Test Command Description:

This test case is executed to get the Ethernet interface capabilities. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in the Ubuntu Linux host. The ethernetCapPresent test will be executed and the result will be displayed as shown in Figure 4-15.

### Test Pre-requisites: NA

### Test Mode: Special Mode and Normal Mode

### Test Screenshot:

```
+-----+
|                                     |
|               ETHERNET TEST        |
|-----+-----+
| 1 | ethernetCapPresent              | 3 | Run all Ethernet tests      |
|-----+-----+
| 2 | ethernetLoopback                | 0 | Return to main menu          |
|-----+-----+
Please Enter Test to Execute:1
Testing EthernetCapPresent command...

Ethernet is Supported in CGW150.

PHY ID for WAN port 5 is 0x11
PHY ID for LAN port 6 is 0x1F
PHY ID for LAN port 7 is 0xC
PHY ID for LAN port 8 is 0xD
PHY ID for LAN port 9 is 0xE

Number of Ethernet Ports: 5
Number of LAN Ethernet Ports: 4
Number of WAN Ethernet Ports: 1

BIST TEST RESULT: ethernetCapPresent: PASSED
```

Figure 4-15: ethernetCapPresent Tests



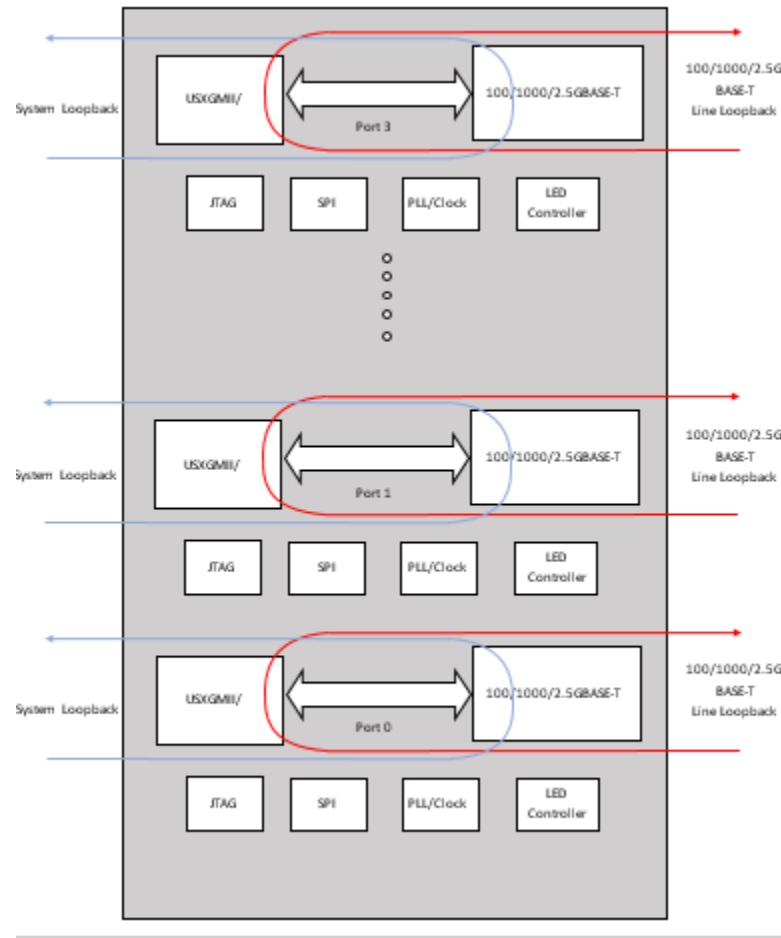
### 4.5.3 EthernetLoopBack

Test Command Description:

This test case is used to validate the loop back functionality of the Ethernet port. Enter the subtest case number as "2" in Special Mode in the terminal. The ethernetLoopback test will be executed and the result will be displayed as shown in Figure 4-16.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode



**Test Screenshot:**

NOTE: Only 3 LAN ports supported Test Screenshot:



```
+-----+
Please Enter Test to Execute:2
Testing Ethernet Loopback test

Loopback Test Results for eth2
=====

Number of Packets Sent : 10
Number of Packets Received : 10
Number of Tx errors : 0
Number of Rx errors : 0
No of tx and rx packets are equal

Loopback Test Results for eth3
=====

Number of Packets Sent : 10
Number of Packets Received : 10
Number of Tx errors : 0
Number of Rx errors : 0
No of tx and rx packets are equal

Loopback Test Results for eth4
=====

Number of Packets Sent : 10
Number of Packets Received : 10
Number of Tx errors : 0
Number of Rx errors : 0
No of tx and rx packets are equal

BIST TEST RESULT: ethernetLoopback: PASSED
```

Figure 4-16: ethernetLoopback Tests

## 4.6 Log Test Command

### **Test Command Description:**

This test is used to copy all the logs to a specified path. Enter Log test case number as "5" in Normal Mode or subtest case number as "5" in Special Mode in the Ubuntu Linux Host. The Log test will be executed, and the result will be displayed as shown in Figure 4-23.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:10:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170      |
+-----+
|                                     |
|               CGW450 SPECIAL BIST MAIN MENU               |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test        |
|-----|-----|
| 2 | Control Test           | 13 | USB Test              |
|-----|-----|
| 3 | Ethernet Test          | 14 | PON Test              |
|-----|-----|
| 4 | FLASH Test             | 15 | Client Test           |
|-----|-----|
| 5 | LogCopy Test           | 16 | LED Test              |
|-----|-----|
| 6 | SDRAM Test             | 17 | PCM Test              |
|-----|-----|
| 7 | Network Test           | 18 | TILT SENSOR test       |
|-----|-----|
| 8 | Temperature Test       | 19 | Cellular Test          |
|-----|-----|
| 9 | WiFi Test              | 20 | Run All Test           |
|-----|-----|
| 10 | SFP Test               | 21 | Display summary        |
|-----|-----|
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST        |
|-----|-----|
|                                     |
|                                     | 0 | EXIT                  |
+-----+
Please Enter Test to Execute: |
```

Figure 4-23: Log Test Command

## 4.7 Network Test Commands

### Test Command Description:

This test is used to check the functionalities of network interfaces. Enter Network test case number as "7" in the Ubuntu Linux Host. and it will display sub menu for Network tests as in Figure 4-26.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode



**NOTE:** Host IP should be 192.168.1.100

**Test Screenshot:**

```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL_MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:1D:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     CGW450 SPECIAL BIST MAIN MENU                                     |
+-----+
| 1 | Box Info Test           | 12 | Runner Test          |
+-----+
| 2 | Control Test           | 13 | USB Test               |
+-----+
| 3 | Ethernet Test          | 14 | PON Test               |
+-----+
| 4 | FLASH Test             | 15 | Client Test            |
+-----+
| 5 | LogCopy Test           | 16 | LED Test               |
+-----+
| 6 | SDRAM Test             | 17 | PCM Test               |
+-----+
| 7 | Network Test           | 18 | TILT SENSOR test       |
+-----+
| 8 | Temperature Test       | 19 | Cellular Test          |
+-----+
| 9 | WiFi Test              | 20 | Run All Test           |
+-----+
| 10 | SFP Test              | 21 | Display summary        |
+-----+
| 11 | RedButtonReset Test   | 22 | LED MATRIX TEST        |
+-----+
|   |                       | 0  | EXIT                   |
+-----+
Please Enter Test to Execute: |
```



```
| 4 | NetworkGetDHCPServerIP      | 12 | NetworkIperfStop      |
| 5 | NetworkGetInterfaceFlags     | 13 | NetworkDownloadFile   |
| 6 | NetworkGetMAC                | 14 | Run all Network tests |
| 7 | NetworkGetPortName           | 0  | Return to main menu   |
| 8 | NetworkPing                  |
+-----+
Please Enter Test to Execute:1

BR0   : Not Supported
BR1   : Supported
BR2   : Not Supported
ETH1  : Supported
ETH2  : Supported
ETH3  : Supported
ETH4  : Supported
ETH5  : Not Supported
wl0   : Supported
wl1   : Supported
wl2   : Supported

BIST TEST RESULT: networkCapPresent:PASSED
+-----+
```

Figure 4-26: Network Test Command

### 4.7.1 networkCapPresent

**Test Command Description:**

This test command displays the supported network interfaces. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in the Ubuntu Linux host. The networkCapPresent test will be executed and the result will be displayed as shown in Figure 4-27.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|                                     NETWORK TEST                                     |
+-----+
| 1 | NetworkCapPresent                | 5 | NetworkPing                |
+-----+
| 2 | NetworkGetInterfaceFlags         | 6 | NetworkDownloadFile       |
+-----+
| 3 | NetworkGetMAC                    | 7 | Run all Network tests     |
+-----+
| 4 | NetworkGetPortName               | 0 | Return to main menu       |
+-----+
Please Enter Test to Execute:1

BR0    : Not Supported
BR1    : Supported
BR2    : Supported
ETH1   : Supported
ETH2   : Supported
ETH3   : Supported
ETH4   : Supported
ETH5   : Not Supported
wl0    : Supported
wl2    : Supported

BIST TEST RESULT: networkCapPresent:PASSED
```

Figure 4-27: networkCapPresent Test Command

## 4.7.2 networkSetIP

### Test Command Description:

This test command set the IP address for indicated interfaces. Enter the subtest case number as "2" in Special Mode in the terminal. The networkSetIP test will be executed and the result will be displayed as shown in Figure 4-28.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
+-----+
| 7 | NetworkGetPortName                | 0 | Return to main menu       |
+-----+
| 8 | NetworkPing                      |
+-----+
Please Enter Test to Execute:2
networkSetIP lan1 10.10.10.10

BIST TEST RESULT: networkSetIP:PASSED
networkSetIP lan2 20.20.20.20

BIST TEST RESULT: networkSetIP:PASSED
networkSetIP lan3 30.30.30.30

BIST TEST RESULT: networkSetIP:PASSED
networkSetIP lan4 40.40.40.40

BIST TEST RESULT: networkSetIP:PASSED
networkSetIP wifi_5GHz 192.168.1.2

BIST TEST RESULT: networkSetIP:PASSED
networkSetIP wifi_2GHz 192.168.1.3

BIST TEST RESULT: networkSetIP:PASSED
```

Figure 4-28: networkSetIP Test Command

## 4.7.3 networkGetIP

### Test Command Description:



This test command gets the IP address for the indicted interfaces. Enter the subtest case number as "3" in Special Mode in the Ubuntu Linux host. The networkGetIP test will be executed and the result will be displayed as shown in Figure 4-29.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
Please Enter Test to Execute:3
networkGetIP br1
IP:192.168.1.254

BIST TEST RESULT: networkGetIP:PASSED
networkGetIP lan1
IP:10.10.10.10

BIST TEST RESULT: networkGetIP:PASSED
networkGetIP lan2
IP:20.20.20.20

BIST TEST RESULT: networkGetIP:PASSED
networkGetIP lan3
IP:30.30.30.30

BIST TEST RESULT: networkGetIP:PASSED
networkGetIP lan4
IP:40.40.40.40

BIST TEST RESULT: networkGetIP:PASSED
networkGetIP wifi_5GHz
IP:192.168.1.2

BIST TEST RESULT: networkGetIP:PASSED
networkGetIP wifi_2GHz
IP:192.168.1.3

BIST TEST RESULT: networkGetIP:PASSED
```

Figure 4-29: networkGetIP Test Command

#### 4.7.4 networkGetDHCPServerIP

**Test Command Description:**

This test command gets the DHCP server IP address. Enter the subtest case number as "4" in Special Mode in the terminal. The networkGetDHCPServerIP test will be executed and the result will be displayed as shown in Figure 4-30.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                     |
|               NETWORK TEST        |
|-----+-----+
| 1 | NetworkCapPresent              | 9 | NetworkIperfStart              |
|-----+-----+
| 2 | NetworkSetIP                   | 10 | NetworkGetIperfStatus           |
|-----+-----+
| 3 | NetworkGetIP                   | 11 | NetworkGetIperfLog              |
|-----+-----+
| 4 | NetworkGetDHCPServerIP         | 12 | NetworkIperfStop                |
|-----+-----+
| 5 | NetworkGetInterfaceFlags       | 13 | NetworkDownloadFile             |
|-----+-----+
| 6 | NetworkGetMAC                  | 14 | Run all Network tests           |
|-----+-----+
| 7 | NetworkGetPortName              | 0 | Return to main menu             |
|-----+-----+
| 8 | NetworkPing                    |                                     |
|-----+-----+
Please Enter Test to Execute:4
networkGetDHCPServerIP
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP:PASSED
```

Figure 4-30: networkGetDHCPServerIP Test Command

## 4.7.5 networkGetInterfaceFlags

### Test Command Description:

This test command gets the flags for the BIST network interface indicated. Enter the subtest case number as "2" in Normal Mode or subtest case number as "5" in Special Mode in the Ubuntu Linux host. The networkGetInterfaceFlags test will be executed and the result will be displayed as shown in Figure 4-31.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
|
|----- NETWORK TEST -----|
| 1 | NetworkCapPresent      | 5 | NetworkPing              |
| 2 | NetworkGetInterfaceFlags | 6 | NetworkDownloadFile       |
| 3 | NetworkGetMAC           | 7 | Run all Network tests     |
| 4 | NetworkGetPortName      | 0 | Return to main menu       |
|-----|
Please Enter Test to Execute:2
networkGetInterfaceFlags br1
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
networkGetInterfaceFlags lan1
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
networkGetInterfaceFlags lan2
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
networkGetInterfaceFlags lan3
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
networkGetInterfaceFlags lan4
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
networkGetInterfaceFlags wifi_5GHz
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
networkGetInterfaceFlags wifi_2GHz
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
```

Figure 4-31: networkGetInterfaceFlags Test Command

## 4.7.6 networkGetMAC

### Test Command Description:

This test command gets MAC address for the BIST network interface indicated. Enter the subtest case number as "3" in Normal Mode or subtest case number as "6" in Special Mode in the terminal. The networkGetMAC test will be executed and the result will be displayed as shown in Figure 4-32.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
Please Enter Test to Execute:6
networkGetMAC br1
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC lan1
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC lan2
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC lan3
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC lan4
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC wifi_5GHz
MAC:38:B8:00:1E:0C:00

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC wifi_2GHz
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
```

Figure 4-32: networkGetMAC Test Command

## 4.7.7 networkGetPortName

### **Test Command Description:**

This test command gets the port name for the indicated network interface. Enter the subtest case number as "4" in Normal Mode or subtest case number as "7" in Special Mode in the terminal. The networkGetPortName test will be executed and the result will be displayed as shown in Figure 4-33.

### **Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**



```
BIST TEST RESULT: networkGetMAC: PASSED
+-----+
|               NETWORK TEST               |
+-----+
| 1 | NetworkCapPresent | 5 | NetworkPing |
+-----+
| 2 | NetworkGetInterfaceFlags | 6 | NetworkDownloadFile |
+-----+
| 3 | NetworkGetMAC | 7 | Run all Network tests |
+-----+
| 4 | NetworkGetPortName | 0 | Return to main menu |
+-----+
Please Enter Test to Execute: 4
PortName: br1

BIST TEST RESULT: networkGetPortName: PASSED
PortName: eth1

BIST TEST RESULT: networkGetPortName: PASSED
PortName: eth2

BIST TEST RESULT: networkGetPortName: PASSED
PortName: eth3

BIST TEST RESULT: networkGetPortName: PASSED
PortName: eth4

BIST TEST RESULT: networkGetPortName: PASSED
PortName: wl0

BIST TEST RESULT: networkGetPortName: PASSED
PortName: wl2

BIST TEST RESULT: networkGetPortName: PASSED
```

Figure 4-33: networkGetPortName Test Command

## 4.7.8 networkPing

### Test Command Description:

This test command is used to perform ping operation of the IP address indicated. Enter the subtest case number as "5" in Normal Mode or subtest case number as "8" in Special Mode in the Ubuntu. The networkPing test will be executed and the result will be displayed as shown in Figure 4-34.

### Test Pre-requisites: NA

### Test Mode: Special Mode and Normal Mode

### Test Screenshot:



```
+-----+
|                                     NETWORK TEST                                     |
+-----+
| 1 | NetworkCapPresent                | 9 | NetworkIperfStart                |
+-----+
| 2 | NetworkSetIP                     | 10 | NetworkGetIperfStatus             |
+-----+
| 3 | NetworkGetIP                     | 11 | NetworkGetIperfLog                |
+-----+
| 4 | NetworkGetDHCPServerIP           | 12 | NetworkIperfStop                  |
+-----+
| 5 | NetworkGetInterfaceFlags         | 13 | NetworkDownloadFile               |
+-----+
| 6 | NetworkGetMAC                    | 14 | Run all Network tests             |
+-----+
| 7 | NetworkGetPortName                | 0 | Return to main menu               |
+-----+
| 8 | NetworkPing                      |                                     |
+-----+
Please Enter Test to Execute:8

Port br1 IP: 192.168.1.254
Pinging 192.168.1.100 on br1...

BIST TEST RESULT: networkPing:PASSED
+-----+
```

Figure 4-34: networkPing Test Command

## 4.7.9 networkIperfStart

### Test Command Description:

This test command is used to start an iperf session on the network interface. Enter the subtest case number as "9" in Special Mode in the terminal. From the submenu select iperf or iperf3 to start and enter the user inputs.

The networkIperfStart (client) test will be executed and the result will be displayed as shown from Figure 4-35 to Figure 4-36. This test will execute Iperf or Iperf3 client from CGW450.

The networkIperfStart (Server) test will be executed and the result will be displayed as shown from Figure 4-37 and Figure 4-38. This test will execute Iperf or Iperf3 server from CGW450.

### Test Pre-requisites:

iperf server must be started on peer while running iperf and iperf3 server must be started on peer while running iperf3.

- Command to start iperf: iperf -s
- Command to start iperf: iperf3 -s

Iperf or Iperf3 client must be started from peer to communicate with Iperf or Iperf3 server in CGW450.

**Test Mode:** Special Mode

**Test Screenshot:**



```
Please Enter Test to Execute:9
+-----+
|               NETWORK IPERF TEST               |
+-----+
| 1 | Network Iperf Test           | 3 | Network Iperf Server Start |
+-----+
| 2 | Network Iperf3 Test          | 4 | Network Iperf3 Server Start |
+-----+
| 0 | Return to main menu          |
+-----+
Please Enter Test to Execute:1
Enter IPERF Client Details:
-----
Please Enter Server IP:192.168.1.254
Please Enter Transmit Duration in Sec:30
Please Enter Interval Time Between Transmits in Sec:1
Please Enter Bandwidth:1000m
Please Enter Server Port:1234
Please Enter Optional IPerf Arguments:-V
Session:28366

BIST TEST RESULT: networkIperfStart:PASSED
+-----+
```

**Figure 4-35: networkIperfStart Test Command**

```
BIST TEST RESULT: networkIperf3Start:PASSED
+-----+
|               NETWORK IPERF TEST               |
+-----+
| 1 | Network Iperf Test           | 3 | Network Iperf Server Start |
+-----+
| 2 | Network Iperf3 Test          | 4 | Network Iperf3 Server Start |
+-----+
| 0 | Return to main menu          |
+-----+
Please Enter Test to Execute:2
Enter IPERF3 Client Details:
-----
Please Enter Server IP:192.168.1.254
Please Enter Transmit Duration in Sec:30
Please Enter Interval Time Between Transmits in Sec:1
Please Enter Bandwidth:1000m
Please Enter Server Port:1234
Please Enter Optional IPerf Arguments:-V
Session:29988

BIST TEST RESULT: networkIperf3Start:PASSED
+-----+
```

**Figure 4-36: networkIperf3Start Test Command**



```
+-----+
|               NETWORK IPERF TEST               |
+-----+
| 1 | Network Iperf Test          | 3 | Network Iperf Server Start |
+-----+
| 2 | Network Iperf3 Test         | 4 | Network Iperf3 Server Start |
+-----+
| 0 | Return to main menu         |
+-----+
Please Enter Test to Execute:3
Enter IPERF Server Details:
-----
Please Enter Server Port:192.168.1.254
Session:30738

BIST TEST RESULT: networkIperfStart:PASSED
+-----+
```

Figure 4-37: networkIperfStart (Server) Test Command

```
+-----+
|               NETWORK IPERF TEST               |
+-----+
| 1 | Network Iperf Test          | 3 | Network Iperf Server Start |
+-----+
| 2 | Network Iperf3 Test         | 4 | Network Iperf3 Server Start |
+-----+
| 0 | Return to main menu         |
+-----+
Please Enter Test to Execute:4
Enter IPERF3 Server Details:
-----
Please Enter Server Port:192.168.1.254
Session:31456

BIST TEST RESULT: networkIperfStart:PASSED
+-----+
```

Figure 4-38: networkIperf3Start (Server) Test Command

## 4.7.10 networkGetIperfStatus

### **Test Command Description:**

This test command is used to get the status of the iperf from the session indicated. Enter the subtest case number as "10" in Special Mode in the Ubuntu Linux host. The networkGetIperfStatus test will be executed and the result will be displayed as shown in Figure 4-39.

**Test Pre-requisites:** networkIperfStart should be started before running this test.

**Test Mode:** Special Mode

**Test Screenshot:**

```
+-----+
|                                     NETWORK TEST                                     |
+-----+
| 1 | NetworkCapPresent                | 9 | NetworkIperfStart                |
+-----+
| 2 | NetworkSetIP                     | 10 | NetworkGetIperfStatus             |
+-----+
| 3 | NetworkGetIP                     | 11 | NetworkGetIperfLog                |
+-----+
| 4 | NetworkGetDHCPsServerIP          | 12 | NetworkIperfStop                  |
+-----+
| 5 | NetworkGetInterfaceFlags         | 13 | NetworkDownloadFile               |
+-----+
| 6 | NetworkGetMAC                    | 14 | Run all Network tests              |
+-----+
| 7 | NetworkGetPortName                | 0 | Return to main menu                |
+-----+
| 8 | NetworkPing                       |                                     |
+-----+
Please Enter Test to Execute:10
Status:Finished
BIST TEST RESULT: networkGetIperfStatus:PASSED
```

Figure 4-39: networkGetIperfStatus Test Command

## 4.7.11 networkGetIperfLog

**Test Command Description:**

This test command gets the output log from the session ID indicated. Enter the subtest case number as "11" in Special Mode in the terminal. The networkGetIperfLog test will be executed and the result will be displayed as shown in Figure 4-40.

**Test Pre-requisites:** networkIperfStart should be started before running this test.

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                NETWORK TEST                                |
+-----+
| 1 | NetworkCapPresent           | 9 | NetworkIperfStart           |
+-----+
| 2 | NetworkSetIP                | 10 | NetworkGetIperfStatus        |
+-----+
| 3 | NetworkGetIP                | 11 | NetworkGetIperfLog           |
+-----+
| 4 | NetworkGetDHCPServerIP      | 12 | NetworkIperfStop             |
+-----+
| 5 | NetworkGetInterfaceFlags    | 13 | NetworkDownloadFile          |
+-----+
| 6 | NetworkGetMAC               | 14 | Run all Network tests        |
+-----+
| 7 | NetworkGetPortName          | 0  | Return to main menu          |
+-----+
| 8 | NetworkPing                 |                                     |
+-----+
Please Enter Test to Execute:11
/bin/iperf iperf3 -s -i1 -p 5211

/bin/iperf: ignoring extra argument -- iperf3
-----
Server listening on TCP port 5211
TCP window size: 128 KByte (default)
-----
IPERF LOG END

BIST TEST RESULT: networkGetIperfLog:PASSED
```

Figure 4-40: networkGetIperfLog Test Command

## 4.7.12 networkIperfStop

### Test Command Description:

This test command is used to stop the iperf session for the indicated session ID. Enter the subtest case number as "12" in Special Mode in the terminal. The networkIperfStop test will be executed and the result will be displayed as shown in Figure 4-41.

**Test Pre-requisites:** networkIperfStart should be started before running this test.

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                     NETWORK TEST                                     |
+-----+
| 1 | NetworkCapPresent                | 9 | NetworkIperfStart                |
+-----+
| 2 | NetworkSetIP                     | 10 | NetworkGetIperfStatus             |
+-----+
| 3 | NetworkGetIP                     | 11 | NetworkGetIperfLog                |
+-----+
| 4 | NetworkGetDHCPServerIP           | 12 | NetworkIperfStop                  |
+-----+
| 5 | NetworkGetInterfaceFlags          | 13 | NetworkDownloadFile               |
+-----+
| 6 | NetworkGetMAC                     | 14 | Run all Network tests             |
+-----+
| 7 | NetworkGetPortName                | 0 | Return to main menu               |
+-----+
| 8 | NetworkPing                       |                                     |
+-----+
Please Enter Test to Execute:12
Stoping Iperf

BIST TEST RESULT: networkIperfStop:PASSED
Iperf Status
Status:Finished

BIST TEST RESULT: networkGetIperfStatus:PASSED
```

Figure 4-41: networkIperfStop Test Command

### 4.7.13 networkDownloadFile

#### **Test Command Description:**

This test command is used to download a file from the IP address indicated. Enter the subtest case number as "6" in Normal Mode or subtest case number as "13" in Special Mode in the Ubuntu Linux host. The networkDownloadFile test will be executed and the result will be displayed as shown in Figure 4-42.



**NOTE:** Downloaded file will be available in /data/ folder.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
BIST TEST RESULT: networkIperfLog: PASSED
+-----+
|               NETWORK TEST               |
+-----+
| 1 | NetworkCapPresent          | 9 | NetworkIperfStart          |
+-----+
| 2 | NetworkSetIP               | 10 | NetworkGetIperfStatus      |
+-----+
| 3 | NetworkGetIP               | 11 | NetworkGetIperfLog         |
+-----+
| 4 | NetworkGetDHCPServerIP     | 12 | NetworkIperfStop           |
+-----+
| 5 | NetworkGetInterfaceFlags   | 13 | NetworkDownloadFile        |
+-----+
| 6 | NetworkGetMAC              | 14 | Run all Network tests      |
+-----+
| 7 | NetworkGetPortName         | 0 | Return to main menu        |
+-----+
| 8 | NetworkPing                |
+-----+
Please Enter Test to Execute:13
BIST TEST RESULT: networkDownloadFile: PASSED
+-----+
```

Figure 4-42: networkDownloadFile Test Command

#### 4.7.14 Run all Network Tests

**Test Command Description:**

This test is used to run all Network test cases. Enter subtest case number as "7" in Normal Mode or subtest case number as "14" in Special Mode in Ubuntu Linux Host. All Network tests will be run, and the result will be displayed as shown Figure 4-43 to Figure 4-46.

**Test Pre-requisites:** Iperf server should be started on the peer.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
| 1 | NetworkCapPresent | 9 | NetworkIperfStart |
| 2 | NetworkSetIP | 10 | NetworkGetIperfStatus |
| 3 | NetworkGetIP | 11 | NetworkGetIperfLog |
| 4 | NetworkGetDHCPServerIP | 12 | NetworkIperfStop |
| 5 | NetworkGetInterfaceFlags | 13 | NetworkDownloadFile |
| 6 | NetworkGetMAC | 14 | Run all Network tests |
| 7 | NetworkGetPortName | 0 | Return to main menu |
| 8 | NetworkPing |
+-----+
Please Enter Test to Execute:14
+-----+

|-----+
| NETWORK TEST |
+-----+

BR0 : Not Supported
BR1 : Supported
BR2 : Not Supported
ETH1 : Supported
ETH2 : Supported
ETH3 : Supported
ETH4 : Supported
ETH5 : Not Supported
wl0 : Supported
wl2 : Supported

BIST TEST RESULT: networkCapPresent: PASSED
+-----+
```

Figure 4-43: Run All Network Tests (1)

```
wl0 : Supported
wl2 : Supported

BIST TEST RESULT: networkCapPresent: PASSED
+-----+
BIST networkSetIP test started...
networkSetIP lan1 10.10.10.10

BIST TEST RESULT: networkSetIP: PASSED
networkSetIP lan2 20.20.20.20

BIST TEST RESULT: networkSetIP: PASSED
networkSetIP lan3 30.30.30.30

BIST TEST RESULT: networkSetIP: PASSED
networkSetIP lan4 40.40.40.40

BIST TEST RESULT: networkSetIP: PASSED
networkSetIP wifi_5GHz 192.168.1.2

BIST TEST RESULT: networkSetIP: PASSED
networkSetIP wifi_2GHz 192.168.1.3

BIST TEST RESULT: networkSetIP: PASSED
+-----+
BIST networkGetIP test started...
```

Figure 4-44 Run All Network Tests (2)



```
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCP ServerIP: PASSED
+-----+
BIST networkGetInterfaceFlags test started...
networkGetInterfaceFlags br1
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags: PASSED
networkGetInterfaceFlags lan1
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags: PASSED
networkGetInterfaceFlags lan2
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags: PASSED
networkGetInterfaceFlags lan3
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags: PASSED
networkGetInterfaceFlags lan4
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags: PASSED
networkGetInterfaceFlags wifi_5GHz
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags: PASSED
networkGetInterfaceFlags wifi_2GHz
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags: PASSED
networkGetInterfaceFlags wifi_6GHz
+-----+
```

Figure 4-45 Run All Network Tests (3)



```
BIST networkGetMAC test started...
networkGetMAC br1
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC lan1
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC lan2
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC lan3
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC lan4
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC wifi_5GHz
MAC:38:B8:00:1E:0C:00

BIST TEST RESULT: networkGetMAC:PASSED
networkGetMAC wifi_2GHz
MAC:38:B8:00:1E:0B:F8

BIST TEST RESULT: networkGetMAC:PASSED
+-----+
BIST networkGetPortName test started
```

Figure 4-46: Run All Network Tests (4)



```
+-----+
BIST networkGetPortName test started...
networkGetPortName br1
PortName:br1

BIST TEST RESULT: networkGetPortName:PASSED
networkGetPortName lan1
PortName:eth1

BIST TEST RESULT: networkGetPortName:PASSED
networkGetPortName lan2
PortName:eth2

BIST TEST RESULT: networkGetPortName:PASSED
networkGetPortName lan3
PortName:eth3

BIST TEST RESULT: networkGetPortName:PASSED
networkGetPortName lan4
PortName:eth4

BIST TEST RESULT: networkGetPortName:PASSED
networkGetPortName wifi_5GHz
PortName:wlan0

BIST TEST RESULT: networkGetPortName:PASSED
networkGetPortName wifi_2GHz
PortName:wlan2

BIST TEST RESULT: networkGetPortName:PASSED
+-----+
```

```
+-----+
BIST networkPing test started...

Port br1 IP: 192.168.1.254
Pinging 192.168.1.100 on br1...

BIST TEST RESULT: networkPing:PASSED
+-----+
BIST networkIperfStart test started...
Session:4666

BIST TEST RESULT: networkIperfStart:PASSED
+-----+
Status:Finished

BIST TEST RESULT: networkGetIperfStatus:PASSED
+-----+
```



```
wifiStart : PASSED
networkCapPresent : PASSED
networkSetIP [ lan1 10.10.10.10 ] : PASSED
networkSetIP [ lan2 20.20.20.20 ] : PASSED
networkSetIP [ lan3 30.30.30.30 ] : PASSED
networkSetIP [ lan4 40.40.40.40 ] : PASSED
networkSetIP [ wifi_5GHz 192.168.1.2 ] : PASSED
networkSetIP [ wifi_2GHz 192.168.1.3 ] : PASSED
networkGetIP [ br1 ] : PASSED
networkGetIP [ lan1 ] : PASSED
networkGetIP [ lan2 ] : PASSED
networkGetIP [ lan3 ] : PASSED
networkGetIP [ lan4 ] : PASSED
networkGetIP [ wifi_5GHz ] : PASSED
networkGetIP [ wifi_2GHz ] : PASSED
networkGetDHCPsServerIP [ br1 ] : PASSED
networkGetInterfaceFlags [ br1 ] : PASSED
networkGetInterfaceFlags [ lan1 ] : PASSED
networkGetInterfaceFlags [ lan2 ] : PASSED
networkGetInterfaceFlags [ lan3 ] : PASSED
networkGetInterfaceFlags [ lan4 ] : PASSED
networkGetInterfaceFlags [ wifi_5GHz ] : PASSED
networkGetInterfaceFlags [ wifi_2GHz ] : PASSED
networkGetMAC [ br1 ] : PASSED
networkGetMAC [ lan1 ] : PASSED
networkGetMAC [ lan2 ] : PASSED
networkGetMAC [ lan3 ] : PASSED
networkGetMAC [ lan4 ] : PASSED
networkGetMAC [ wifi_5GHz ] : PASSED
networkGetMAC [ wifi_2GHz ] : PASSED
networkGetPortName [ br1 ] : PASSED
networkGetPortName [ lan1 ] : PASSED
networkGetPortName [ lan2 ] : PASSED
networkGetPortName [ lan3 ] : PASSED
networkGetPortName [ lan4 ] : PASSED
networkGetPortName [ wifi_5GHz ] : PASSED
networkGetPortName [ wifi_2GHz ] : PASSED
networkPing [ br1 192.168.1.100 ] : PASSED
networkIperfStart [ iperf -c 192.168.1.100 -t 30 -i 5 ] : PASSED
networkGetIperfStatus : PASSED
networkGetIperfLog : PASSED
networkIperfStop : PASSED
networkIperfStart [ iperf3 -c 192.168.1.100 -t 30 -i 5 ] : PASSED
networkGetIperfStatus : PASSED
networkGetIperfLog : PASSED
networkIperfStop : PASSED
networkDownloadFile [ br1 http://192.168.1.100/index.html ] : PASSED
wifiStop : PASSED
```



```
etworkIperfLog : PASSED
etworkIperfStop : PASSED
etworkDownloadFile [ br1 http://192.168.1.100/index.html ] : PASSED
ifiStop : PASSED
-----
DISPLAYING SUMMARY OF EXECUTION |
-----
otal Number of Test cases executed :48
est cases passed :48
est cases InProgress :0
est cases failed :0
ot supported test cases :0

ee complete summary in /tmp/bist/summary.txt
-----+
NETWORK TEST |
```

## 4.8 Temperature Test Commands

### Test Command Description:



This test is used to validate the temperature sensor device. Enter Temperature test case number as "8" in the Ubuntu Linux Host. and it will display sub menu for Temperature tests as in Figure 4-47.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL_MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID         | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:1D:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     |
|               CGW450 SPECIAL BIST MAIN MENU               |
|                                     |
| 1 | Box Info Test          | 12 | Runner Test        |
| 2 | Control Test          | 13 | USB Test            |
| 3 | Ethernet Test         | 14 | PON Test           |
| 4 | FLASH Test            | 15 | Client Test         |
| 5 | LogCopy Test          | 16 | LED Test           |
| 6 | SDRAM Test            | 17 | PCM Test            |
| 7 | Network Test          | 18 | TILT SENSOR test    |
| 8 | Temperature Test      | 19 | Cellular Test        |
| 9 | WiFi Test             | 20 | Run All Test         |
| 10 | SFP Test             | 21 | Display summary      |
| 11 | RedButtonReset Test  | 22 | LED MATRIX TEST      |
| 0 | EXIT                  |
+-----+
Please Enter Test to Execute: |
```

Figure 4-47: Temperature Test Commands

## 4.8.1 temperatureCapSensors

**Test Command Description:**



This test command is used to check the interfaces, which will support temperature sensors. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in the Ubuntu Linux host. The temperatureCapSensors test will be executed and the result will be displayed as shown in Figure 4-48.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
|                                     TEMPERATURE TEST                                     |
+-----+-----+
| 1 | temperatureCapSensors           | 4 | Run all Temperature                         |
+-----+-----+
| 2 | temperatureGetCurrent           | 0 | Return to main menu                         |
+-----+-----+
| 3 | temperatureGetLimits            |                                     |
+-----+-----+
Please Enter Test to Execute:1
Testing Temperature Sensor Capability Command...

Supported Temperature sensors:
cpu:Supported
wifi_5GHz:Supported
wifi_2GHz:Supported
BIST TEST RESULT: temperatureCapSensors:PASSED
```

Figure 4-48: TemperatureCapSensors Test Command

## 4.8.2 temperatureGetCurrent

**Test Command Description:**

This test command is used to get the current temperature of the indicated sensor. Enter the subtest case number as "2" in Normal Mode or subtest case number as "2" in Special Mode in the Ubuntu Linux host. The temperatureGetCurrent test will be executed and the result will be displayed as shown in Figure 4-49.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|               TEMPERATURE TEST               |
+-----+
| 1 | temperatureCapSensors | 4 | temperatureTest |
+-----+
| 2 | temperatureGetCurrent | 5 | Run all Temperature |
+-----+
| 3 | temperatureGetLimits  | 0 | Return to main menu |
+-----+
Please Enter Test to Execute:2
Get CPU current temperature

Testing Current Temperature Get Command...

Temperature[C]:51

BIST TEST RESULT: temperatureGetCurrent:PASSED
+-----+
Get WIFI 2.4GHz current temperature

Testing Current Temperature Get Command...

Temperature[C] = 35

BIST TEST RESULT: temperatureGetCurrent:PASSED
+-----+
Get WIFI 5GHz current temperature

Testing Current Temperature Get Command...

Temperature[C] = 32

BIST TEST RESULT: temperatureGetCurrent:PASSED
+-----+
Get WIFI 6GHz current temperature
```

Figure 4-49: TemperatureGetCurrent Test Command

### 4.8.3 temperatureGetLimits

**Test Command Description:**

This test command is used to get the temperature threshold for the mentioned temperature sensor. Enter the subtest case number as "3" in Normal Mode or subtest case number as "3" in Special Mode in the Ubuntu Linux host. The temperatureGetLimits test will be executed and the result will be displayed as shown in Figure 4-50.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
|                                     |
|             TEMPERATURE TEST      |
|-----|-----|
| 1 | temperatureCapSensors          | 4 | temperatureTest          |
|-----|-----|
| 2 | temperatureGetCurrent          | 5 | Run all Temperature        |
|-----|-----|
| 3 | temperatureGetLimits           | 0 | Return to main menu        |
|-----|-----|
Please Enter Test to Execute:3
Get CPU temperature limit

Testing Temperature Get Limits Command...

Safe[C]:70
Warning[C]:103
Shutdown[C]:108

BIST TEST RESULT: temperatureGetLimits:PASSED
+-----+
Get WIFI 2.4GHz temperature limit

Testing Temperature Get Limits Command...

Safe[C]:40
Warning[C]:105
Shutdown[C]:110

BIST TEST RESULT: temperatureGetLimits:PASSED
+-----+
Get WIFI 5GHz temperature limit

Testing Temperature Get Limits Command...

Safe[C]:40
Warning[C]:105
Shutdown[C]:110

BIST TEST RESULT: temperatureGetLimits:PASSED
```

**Figure 4-50: TemperatureGetLimits Tests**

## 4.8.4 temperatureTest

**Test Command Description:**

This test command is used to validate if the mentioned temperature sensor's temperature is within the applicable range. Enter the subtest case number as "4" in Special Mode in the terminal. The temperature test will be executed, and the result will be displayed as shown in Figure 4-51 and Figure 4-52.

**Test Pre-requisites:** NA

 **Note:** This test will do negative test also. It will throw error when it is tried to set temperature limit less than current temperature.

**Test Mode:** Special Mode**Test Screenshot:**



```
BIST TEST RESULT: temperatureGetLimits: PASSED
+-----+
+-----+
|               TEMPERATURE TEST               |
+-----+
| 1 | temperatureCapSensors      | 4 | temperatureTest      |
+-----+
| 2 | temperatureGetCurrent      | 5 | Run all Temperature   |
+-----+
| 3 | temperatureGetLimits       | 0 | Return to main menu   |
+-----+
Please Enter Test to Execute: 4
CPU temperature test

Testing Temperature Set Command...

Temperature[C]: 51

Testing temperature against warning limits[103C]
Sensor CPU current temperature 51C is within limits 103C

BIST TEST RESULT: temperatureTest: PASSED
+-----+
Testing Temperature Set Command...

Temperature[C]: 51

Testing temperature against shutdown limits[108C]
Sensor CPU current temperature 51C is within limits 108C

BIST TEST RESULT: temperatureTest: PASSED
+-----+
Testing Temperature Set Command...

Temperature[C]: 51
```

**Figure 4-51: TemperatureTest Command (1)**



```
+-----+
Testing Temperature Set Command...

Temperature[C]:51

Testing temperature against custom limits[90C]
Sensor CPU current temperature 51C is with in limits 90C

BIST TEST RESULT: temperatureTest:PASSED
+-----+
WIFI 2.4GHz temperature test

Testing Temperature Set Command...

Temperature[C] = 35

Testing temperature against warning limits[105C]
Sensor wifi_2GHz current temperature 35C is with in limits 105C

BIST TEST RESULT: temperatureTest:PASSED
+-----+
Testing Temperature Set Command...

Temperature[C] = 35

Testing temperature against shutdown limits[110C]
Sensor wifi_2GHz current temperature 35C is with in limits 110C

BIST TEST RESULT: temperatureTest:PASSED
+-----+
WIFI 5GHz temperature test

Testing Temperature Set Command...

Temperature[C] = 31
```

Figure 4-52: Temperature Test Command (2)

## 4.9 Wi-Fi Test Commands

### Test Command Description:

This test is used to check the functionalities of Wi-Fi interfaces. Enter Wi-Fi test case number as "9" in the Ubuntu Linux Host. and it will display sub menu for Wi-Fi tests as in Figure 4-58.

### Test Pre-requisites: NA

Test Mode: Special Mode and Normal Mode

### Test Screenshot:



```
+-----+
Please Enter Test to Execute:9
+-----+
|                                     WIFI TEST                                     |
+-----+
| 1 | wifiStart                        | 11 | wifiResetStats                |
+-----+
| 2 | wifiCapPresent                   | 12 | wifiConnect                   |
+-----+
| 3 | wifiCapAntennaCount              | 13 | wifiDisconnect                |
+-----+
| 4 | wifiSetAntenna                   | 14 | wifiConfigReset               |
+-----+
| 5 | wifiGetVersions                   | 15 | wifiSetPowerState             |
+-----+
| 6 | wifiScan                         | 16 | wifiSetRadio                  |
+-----+
| 7 | wifiGetSSIDCount                  | 17 | wifiStop                      |
+-----+
| 8 | wifiGetSSIDInfoByIndex            | 18 | wifiGetMcs                    |
+-----+
| 9 | wifiGetStats                      | 19 | wifiSetMcs                    |
+-----+
|10 | wifiGetMAC                        | 20 | wifiGetPhyRate                |
+-----+
| 0 | Return to main menu                | 21 | Run all WIFI tests            |
+-----+
```

Figure 4-58: Wi-Fi Test Commands

## 4.9.1 wifiStart

### **Test Command Description:**

This test command is used to initialize the Wi-Fi. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in the Ubuntu Linux host. The wifiStart test will be executed and the result will be displayed as shown in Figure 4-59.

### **Test Pre-requisites:** NA

### **Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**



```
WIFI TEST
1 | wifiStart | 12 | wifiSetPassword |
2 | wifiCapPresent | 13 | wifiSetRadio |
3 | wifiCapAntennaCount | 14 | wifiStop |
4 | wifiGetVersions | 15 | wifiGetMcs |
5 | wifiScan | 16 | wifiSetMcs |
6 | wifiGetSSIDCount | 17 | wifiPhyRate |
7 | wifiGetSSIDInfoByIndex | 18 | wifiGetwpsPin |
8 | wifiGetStats | 19 | wifiSetwpsPin |
9 | wifiGetMAC | 20 | Run all WIFI tests |
10 | wifiConnect | 0 | Return to main menu |
11 | wifiDisconnect |
Please Enter Test to Execute:1
WIFI 5GHZ is UP
WIFI 2GHZ is UP
BIST TEST RESULT: wifiStart:PASSED
```

Figure 4-59: wifiStart Test Commands

## 4.9.2 wifiCapPresent

### Test Command Description:

This test command is used to get the Wi-Fi capabilities. Enter the subtest case number as "2" in Normal Mode or subtest case number as "2" in Special Mode in the Ubuntu Linux host. The wifiCapPresent test will be executed and the result will be displayed as shown in Figure 4-60.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
WIFI TEST
1 | wifiStart | 12 | wifiSetPassword |
2 | wifiCapPresent | 13 | wifiSetRadio |
3 | wifiCapAntennaCount | 14 | wifiStop |
4 | wifiGetVersions | 15 | wifiGetMcs |
5 | wifiScan | 16 | wifiSetMcs |
6 | wifiGetSSIDCount | 17 | wifiPhyRate |
7 | wifiGetSSIDInfoByIndex | 18 | wifiGetwpsPin |
8 | wifiGetStats | 19 | wifiSetwpsPin |
9 | wifiGetMAC | 20 | Run all WIFI tests |
10 | wifiConnect | 0 | Return to main menu |
11 | wifiDisconnect |
Please Enter Test to Execute:2
wl0 : Supported.
WIFI Capability for wl0 WIFI 5GHZ
wl2 : Supported.
WIFI Capability for wl2 WIFI 2GHZ
BIST TEST RESULT: wifiCapPresent:PASSED
```

Figure 4-60: wifiCapPresent Test Command



### 4.9.3 wifiCapAntennaCount

**Test Command Description:**

This test command is used to get the antenna count supported. Enter the subtest case number as "3" in Normal Mode or subtest case number as "3" in Special Mode in the Ubuntu Linux host. The wifiCapAntennaCount test will be executed and the result will be displayed as shown in Figure 4-61.

**Test Pre-requisites:** NA**Test Mode:** Special Mode and Normal Mode**Test Screenshot:**

```
+-----+
|                                     |
|                               WIFI TEST                               |
|-----+-----+
| 1 | wifiStart                    | 11 | wifiResetStats                |
|-----+-----+
| 2 | wifiCapPresent                | 12 | wifiConnect                    |
|-----+-----+
| 3 | wifiCapAntennaCount            | 13 | wifiDisconnect                 |
|-----+-----+
| 4 | wifiSetAntenna                 | 14 | wifiConfigReset                |
|-----+-----+
| 5 | wifiGetVersions                | 15 | wifiSetPowerState              |
|-----+-----+
| 6 | wifiScan                       | 16 | wifiSetRadio                   |
|-----+-----+
| 7 | wifiGetSSIDCount               | 17 | wifiStop                       |
|-----+-----+
| 8 | wifiGetSSIDInfoByIndex          | 18 | wifiGetMcs                     |
|-----+-----+
| 9 | wifiGetStats                   | 19 | wifiSetMcs                     |
|-----+-----+
|10 | wifiGetMAC                     | 20 | wifiGetPhyRate                 |
|-----+-----+
| 0 | Return to main menu             | 21 | Run all WIFI tests             |
|-----+-----+
Please Enter Test to Execute:3

AntennaCount:13

BIST TEST RESULT: wifiCapAntennaCount:PASSED
```

Figure 4-61: WifiCapAntennaCount Test Command

### 4.9.4 wifiSetAntenna

**Test Command Description:**

This command is used to set the antenna for Wi-Fi. Enter the subtest case number as "4" in Special Mode in the Ubuntu Linux host. Enter the configuration true/false for each antenna. The wifiSetAntenna test will be executed and the result will be displayed as shown in Figure 4-62.



**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
+-----+
|                WIFI TEST                |
+-----+
| 1 | wifiStart | 11 | wifiResetStats |
+-----+
| 2 | wifiCapPresent | 12 | wifiConnect |
+-----+
| 3 | wifiCapAntennaCount | 13 | wifiDisconnect |
+-----+
| 4 | wifiSetAntenna | 14 | wifiConfigReset |
+-----+
| 5 | wifiGetVersions | 15 | wifiSetPowerState |
+-----+
| 6 | wifiScan | 16 | wifiSetRadio |
+-----+
| 7 | wifiGetSSIDCount | 17 | wifiStop |
+-----+
| 8 | wifiGetSSIDInfoByIndex | 18 | wifiGetMcs |
+-----+
| 9 | wifiGetStats | 19 | wifiSetMcs |
+-----+
| 10 | wifiGetMAC | 20 | wifiGetPhyRate |
+-----+
| 0 | Return to main menu | 21 | Run all WIFI tests |
+-----+
Please Enter Test to Execute:4
Please enter the configuration for antenna1[true/false]: true
Please enter the configuration for antenna2[true/false]: true
Please enter the configuration for antenna3[true/false]: true
Please enter the configuration for antenna4[true/false]: true

Written Antenna = 0x0F
Antennas are configured successfully

BIST TEST RESULT: wifiSetAntenna:PASSED
```

Figure 4-62: wifiSetAntenna Test Command

## 4.9.5 wifiGetVersions

**Test Command Description:**

This test command is used to get the Wi-Fi firmware version. Enter the subtest case number as "4" in Normal Mode or subtest case number as "5" in Special Mode in the terminal. The wifiGetVersions test will be executed and the result will be displayed as shown in Figure 4-63.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|                                     |
|               WIFI TEST            |
|                                     |
| 1 | wifiStart                      | 11 | wifiResetStats          |
| 2 | wifiCapPresent                 | 12 | wifiConnect             |
| 3 | wifiCapAntennaCount            | 13 | wifiDisconnect          |
| 4 | wifiSetAntenna                 | 14 | wifiConfigReset         |
| 5 | wifiGetVersions                | 15 | wifiSetPowerState       |
| 6 | wifiScan                      | 16 | wifiSetRadio            |
| 7 | wifiGetSSIDCount              | 17 | wifiStop                |
| 8 | wifiGetSSIDInfoByIndex        | 18 | wifiGetMcs              |
| 9 | wifiGetStats                  | 19 | wifiSetMcs              |
| 10 | wifiGetMAC                   | 20 | wifiGetPhyRate          |
| 0 | Return to main menu           | 21 | Run all WIFI tests      |
+-----+
Please Enter Test to Execute:5
FirmwareVersion:Broadcom BCA: 17.10 RC188.31

BIST TEST RESULT: wifiGetVersions:PASSED
+-----+
```

Figure 4-63: wifiGetVersions Test Command

## 4.9.6 wifiScan

 Note: Before running wifiScan test, the target should be configured to station mode.

### **Test Command Description:**

This test command is used to scan the SSID's found in the applicable range. Enter the subtest case number as "5" in Normal Mode or subtest case number as "6" in Special Mode in the terminal. The wifiScan test will be executed and the result will be displayed as shown in Figure 4-64.

**Test Pre-requisites:** At least one SSID should be available in the applicable range.

**Test Mode:** Special Mode and Normal Mode

**Tet Screenshot:**



```
+-----+
|                                     WIFI TEST                                     |
+-----+
| 1 | wifiStart                       | 12 | wifiSetPassword                    |
+-----+
| 2 | wifiCapPresent                  | 13 | wifiSetRadio                      |
+-----+
| 3 | wifiCapAntennaCount             | 14 | wifiStop                         |
+-----+
| 4 | wifiGetVersions                 | 15 | wifiGetMcs                       |
+-----+
| 5 | wifiScan                       | 16 | wifiSetMcs                      |
+-----+
| 6 | wifiGetSSIDCount               | 17 | wifiPhyRate                     |
+-----+
| 7 | wifiGetSSIDInfoByIndex         | 18 | wifiGetwpsPin                   |
+-----+
| 8 | wifiGetStats                   | 19 | wifiSetwpsPin                   |
+-----+
| 9 | wifiGetMAC                     | 20 | Run all WIFI tests              |
+-----+
|10 | wifiConnect                   | 0  | Return to main menu             |
+-----+
|11 | wifiDisconnect                 |                                     |
+-----+

Please Enter Test to Execute:5

Scan completed for wl0
Scan completed for wl2
BIST TEST RESULT: wifiScan: PASSED
```

Figure 4-64: wifiScan Test Command

## 4.9.7 wifiGetSSIDCount



Note: Before running wifiGetSSIDCount test, the target should be configured to station mode.

### **Test Command Description:**

This test command is used to get the total SSID count supported by the Wi-Fi device. Enter the subtest case number as "6" in Normal Mode or subtest case number as "7" in Special Mode in the terminal. The wifiGetSSIDCount test will be executed and the result will be displayed as shown in Figure 4-65.

**Test Pre-requisites:** At least one Wi-Fi SSID should be available in the applicable range.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
----- WIFI TEST -----
| 1 | wifiStart | 12 | wifiSetPassword |
| 2 | wifiCapPresent | 13 | wifiSetRadio |
| 3 | wifiCapAntennaCount | 14 | wifiStop |
| 4 | wifiGetVersions | 15 | wifiGetMcs |
| 5 | wifiScan | 16 | wifiSetMcs |
| 6 | wifiGetSSIDCount | 17 | wifiPhyRate |
| 7 | wifiGetSSIDInfoByIndex | 18 | wifiGetwpsPin |
| 8 | wifiGetStats | 19 | wifiSetwpsPin |
| 9 | wifiGetMAC | 20 | Run all WIFI tests |
| 10 | wifiConnect | 0 | Return to main menu |
| 11 | wifiDisconnect |
-----
Please Enter Test to Execute:5

Scan completed for wl0
Scan completed for wl2
BIST TEST RESULT: wifiScan:PASSED
```

Figure 4-65: wifiGetSSIDCount Test Command

## 4.9.8 wifiGetSSIDInfoByIndex

### Test Command Description:

This test command is used to get the SSID information for specific index number. Enter the subtest case number as "7" in Normal Mode or subtest case number as "8" in Special Mode in the terminal. The wifiGetSSIDInfoByIndex test will be executed and the result will be displayed as shown in Figure 4-66.

**Test Pre-requisites:** At least one Wi-Fi SSID should be available in the applicable range.

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
----- WIFI TEST -----
| 1 | wifiStart | 11 | wifiResetStats |
| 2 | wifiCapPresent | 12 | wifiConnect |
| 3 | wifiCapAntennaCount | 13 | wifiDisconnect |
| 4 | wifiSetAntenna | 14 | wifiConfigReset |
| 5 | wifiGetVersions | 15 | wifiSetPowerState |
| 6 | wifiScan | 16 | wifiSetRadio |
| 7 | wifiGetSSIDCount | 17 | wifiStop |
| 8 | wifiGetSSIDInfoByIndex | 18 | wifiGetMcs |
| 9 | wifiGetStats | 19 | wifiSetMcs |
| 10 | wifiGetMAC | 20 | wifiGetPhyRate |
| 0 | Return to main menu | 21 | Run all WIFI tests |
-----
Please Enter Test to Execute:8
5Ghz for SSIDCount: 208
-----
6Ghz for SSIDCount: 36
-----
2.4Ghz for SSIDCount: 32
-----
BIST TEST RESULT: wifiGetSSIDCount:PASSED
Enter the radio[0/1/2]: 0
Please enter the SSID Index[Index should be within SSID Count]: 20

File size: 245454
Interface = wl0, ssidindex = 20
SSID: "ATThgsdVUS_Guest"
rssi: -41
Noise: -83
channel: 44
BSSID: 22:78:52:C9:7C:F1
BIST TEST RESULT: wifiGetSSIDInfoByIndex:PASSED
```

Figure 4-66: wifiGetSSIDInfoByIndex Test Command



## 4.9.9 wifiGetStats

### **Test Command Description:**

This test command is used to get the Wi-Fi interface statistics. Enter the subtest case number as "8" in Normal Mode or subtest case number as "9" in Special Mode in the Ubuntu Linux host. The wifiGetStats test will be executed and the result will be displayed as shown in Figure 4-67.

**Test Pre-requisites:** Station (mobile/laptop) should be connected to RG via Wi-Fi.



Note: At least one station should be connected to RG.

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**

```
6 | wifiGetSSIDCount | 17 | wifiPhyRate |
7 | wifiGetSSIDInfoByIndex | 18 | wifiGetwpsPin |
8 | wifiGetStats | 19 | wifiSetwpsPin |
9 | wifiGetMAC | 20 | Run all WIFI tests |
10 | wifiConnect | 0 | Return to main menu |
11 | wifiDisconnect |
Please Enter Test to Execute:8
Statistics for 5Ghz interface
-----
uptime[secs]:0s
disconnectionsBoot:0
XPackets:1762
XBytes:81172
XPackets:0
XBytes:0
Statistics for 2.4Ghz interface
-----
uptime[secs]:0s
disconnectionsBoot:0
XPackets:1813
XBytes:83338
XPackets:0
XBytes:0
BIST TEST RESULT: wifiGetStats:PASSED
```

Figure 4-67: wifiGetStats Test Command

## 4.9.10 wifiGetMAC

### **Test Command Description:**

This test case is used to get the MAC address of the Wi-Fi interface. Enter the subtest case number as "9" in Normal Mode or subtest case number as "10" in Special Mode in the Ubuntu Linux host. The wifiGetMAC test will be executed and the result will be displayed as shown in Figure 4-68.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**



```
BIST TEST RESULT: wifiGetStats: PASSED
-----+-----
WIFI TEST
-----+-----
1 | wifiStart | 12 | wifiSetPassword |
2 | wifiCapPresent | 13 | wifiSetRadio |
3 | wifiCapAntennaCount | 14 | wifiStop |
4 | wifiGetVersions | 15 | wifiGetMcs |
5 | wifiScan | 16 | wifiSetMcs |
6 | wifiGetSSIDCount | 17 | wifiPhyRate |
7 | wifiGetSSIDInfoByIndex | 18 | wifiGetwpsPin |
8 | wifiGetStats | 19 | wifiSetwpsPin |
9 | wifiGetMAC | 20 | Run all WIFI tests |
10 | wifiConnect | 0 | Return to main menu |
11 | wifiDisconnect |
-----+-----
Please Enter Test to Execute: 9
5Ghz interface: cur_etheraddr: 38:B8:00:1E:0C:00
2.4Ghz interface: cur_etheraddr: 38:B8:00:1E:0B:F8
BIST TEST RESULT: wifiGetMAC: PASSED
```

Figure 4-68: wifiGetMAC Test Command

#### 4.9.11 wifiResetStats

##### **Test Command Description:**

This test command is used to reset the Wi-Fi interface statistics. Enter the subtest case number as "11" in Special Mode in the Ubuntu Linux host. The wifiResetStats test will be executed and the result will be displayed as shown in Figure 4-69.

**Test Pre-requisites:** Station (mobile/laptop) should be connected to RG via Wi-Fi.



Note: At least one station should be connected to RG.

**Test Mode:** Special Mode

**Test Screenshot:**



```
7 | wifiGetSSIDCount | 17 | wifiStop
8 | wifiGetSSIDInfoByIndex | 18 | wifiGetMcs
9 | wifiGetStats | 19 | wifiSetMcs
10 | wifiGetMAC | 20 | wifiGetPhyRate
0 | Return to main menu | 21 | wifiCheckNVRAM
| | 22 | Run all WIFI tests
Please Enter Test to Execute:11
Interface Statistics for WIFI 5GHZ
Interface status before reset
Tx_packets :0
Rx_packets :0
Interface status after reset
Tx_packets :0
Rx_packets :0
Interface Statistics for WIFI 2GHZ
Interface status before reset
Tx_packets :0
Rx_packets :0
Interface status after reset
Tx_packets :0
Rx_packets :0
BIST TEST RESULT: wifiResetStats:PASSED
```

Figure 4-69: wifiResetStats Test Command

## 4.9.12 wifiConnect

### Test Command Description:

This test command is used to get the information of connected station. Enter the subtest case number as "10" in Normal Mode or subtest case number as "12" in Special Mode in the Ubuntu Linux host. The wifiConnect test will be executed and the result will be displayed in Figure 4-70.

**Test Pre-requisites:** Station (mobile/laptop) should be connected to RG via Wi-Fi.



Note: At least one station should be connected to RG.

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
BIST TEST RESULT: wifiGetMAC: PASSED
+-----+
|          WIFI TEST          |
+-----+
1 | wifiStart | 12 | wifiSetPassword
2 | wifiCapPresent | 13 | wifiSetRadio
3 | wifiCapAntennaCount | 14 | wifiStop
4 | wifiGetVersions | 15 | wifiGetMcs
5 | wifiScan | 16 | wifiSetMcs
6 | wifiGetSSIDCount | 17 | wifiPhyRate
7 | wifiGetSSIDInfoByIndex | 18 | wifiGetwpsPin
8 | wifiGetStats | 19 | wifiSetwpsPin
9 | wifiGetMAC | 20 | Run all WIFI tests
10 | wifiConnect | 0 | Return to main menu
11 | wifiDisconnect |
Please Enter Test to Execute:10
Connected-Client-BSSID for interface wl0 =
Connected-Client-BSSID for interface wl2 =
BIST TEST RESULT: wifiGetConnectionInfo: PASSED
```

Figure 4-70: wifiConnect Test Command



## 4.9.13 wifiDisconnect

### Test Command Description:

This test command is used to de-initialize the Wi-Fi. Enter the subtest case number as "11" in Normal Mode or subtest case number as "13" in Special Mode in the Ubuntu Linux host. The wifiDisconnect test will be executed and the result will be displayed as shown in Figure 4-71.

### Test Pre-requisites: NA



Note: User has to run wifiStart test to continue Wi-Fi test cases.

### Test Mode: Special Mode and Normal Mode

### Test Screenshot:

```
|                                     WIFI TEST                                     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | wifiStart | 11 | wifiResetStats |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2 | wifiCapPresent | 12 | wifiConnect |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 3 | wifiCapAntennaCount | 13 | wifiDisconnect |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 4 | wifiSetAntenna | 14 | wifiConfigReset |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 5 | wifiGetVersions | 15 | wifiSetPowerState |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 6 | wifiScan | 16 | wifiSetRadio |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 7 | wifiGetSSIDCount | 17 | wifiStop |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 8 | wifiGetSSIDInfoByIndex | 18 | wifiGetMcs |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 9 | wifiGetStats | 19 | wifiSetMcs |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 10 | wifiGetMAC | 20 | wifiGetPhyRate |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 0 | Return to main menu | 21 | Run all WIFI tests |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
Please Enter Test to Execute:13
=====
|      wifi test case will not work after this test.      |
|      you have to run wifistart test to proceed further.  |
|-----|-----|
do you want to continue this test?[yes - continue, no - quit]:
yes
WIFI 5GHZ interface is DOWN
WIFI 6GHZ interface is DOWN
WIFI 2GHZ interface is DOWN
BIST TEST RESULT: wifiDisconnect:PASSED
```

Figure 4-71: wifiDisconnect Test Command



## 4.9.14 wifiConfigReset

### Test Command Description:

This test command is used to reset the configurations and reboot the box. Enter the subtest case number as "14" in Special Mode in the terminal. Since RG will go for reboot after this test completes, User has to give input **yes** to continue the test else **no** to quit the test. The wifiConfigReset test will be executed and the result will be displayed as shown Figure 4-73.

### Test Pre-requisites: NA

### Test Mode: Special Mode

### Test Screenshot:

```
+-----+
|                                     WIFI TEST                                     |
+-----+
| 1 | wifiStart                       | 11 | wifiResetStats                     |
+-----+
| 2 | wifiCapPresent                   | 12 | wifiConnect                       |
+-----+
| 3 | wifiCapAntennaCount              | 13 | wifiDisconnect                    |
+-----+
| 4 | wifiSetAntenna                   | 14 | wifiConfigReset                   |
+-----+
| 5 | wifiGetVersions                  | 15 | wifiSetPowerState                 |
+-----+
| 6 | wifiScan                         | 16 | wifiSetRadio                      |
+-----+
| 7 | wifiGetSSIDCount                 | 17 | wifiStop                          |
+-----+
| 8 | wifiGetSSIDInfoByIndex           | 18 | wifiGetMcs                        |
+-----+
| 9 | wifiGetStats                     | 19 | wifiSetMcs                        |
+-----+
| 10 | wifiGetMAC                      | 20 | wifiGetPhyRate                   |
+-----+
| 0 | Return to main menu               | 21 | Run all WIFI tests                |
+-----+
Please Enter Test to Execute:14
=====
|           The system will go for reboot after this test.           |
|=====|
Do you want to continue this test?[yes - continue, no - quit]:
yes
```

Figure 4-73: wifiConfigReset Test Command



## 4.9.15 wifiSetPowerState

### Test Command Description:

This test command is used to set the Wi-Fi power state. Enter the subtest case number as "15" in Special Mode in the Ubuntu Linux host. The wifiSetPowerState test will be executed and the result will be displayed as shown in Figure 4-74.

### Test Pre-requisites: NA

### Test Mode: Special Mode

### Test Screenshot:

```
+-----+
|                                     |
|               WIFI TEST             |
|-----+-----+
| 1 | wifiStart                        | 11 | wifiResetStats      |
|-----+-----+
| 2 | wifiCapPresent                   | 12 | wifiConnect          |
|-----+-----+
| 3 | wifiCapAntennaCount              | 13 | wifiDisconnect       |
|-----+-----+
| 4 | wifiSetAntenna                   | 14 | wifiConfigReset      |
|-----+-----+
| 5 | wifiGetVersions                  | 15 | wifiSetPowerState     |
|-----+-----+
| 6 | wifiScan                         | 16 | wifiSetRadio          |
|-----+-----+
| 7 | wifiGetSSIDCount                 | 17 | wifiStop              |
|-----+-----+
| 8 | wifiGetSSIDInfoByIndex           | 18 | wifiGetMcs            |
|-----+-----+
| 9 | wifiGetStats                     | 19 | wifiSetMcs            |
|-----+-----+
|10 | wifiGetMAC                       | 20 | wifiGetPhyRate        |
|-----+-----+
| 0 | Return to main menu              | 21 | Run all WIFI tests    |
|-----+-----+
Please Enter Test to Execute:15
Disabling WIFI Power
BIST TEST RESULT: wifiSetPowerState:PASSED
Enabling WIFI Power
BIST TEST RESULT: wifiSetPowerState:PASSED
+-----+
```

Figure 4-74: wifiSetPowerState Test Command

## 4.9.16 wifiSetRadio

### Test Command Description:

This test command is used to enable/disable the Wi-Fi radio. Enter the subtest case number as "13" in Normal Mode or subtest case number as "16" in special Mode in the



**Test Mode:** Special Mode and Normal Mode

### Figure 4-75: wifiSetRadio Test Command

**Test Command Description:**

This test command is used to de-initialize the Wi-Fi. Enter the subtest case number as "14" in Normal Mode or subtest case number as "17" in Special mode in the Ubuntu Linux host. The wifiStop test will be executed and the result will be displayed as shown in Figure 4-76.

**Test Pre-requisites:** NA

Note: User has to run wifiStart test to continue Wi-Fi test cases.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
Please Enter Test to Execute:14

=====
|   wifi test case will not work after this test.
|   you have to run wifistart test to proceed further.
=====
do you want to continue this test?[yes - continue, no - quit]:
yes

WIFI 5GHZ interface is DOWN
WIFI 2GHZ interface is DOWN

BIST TEST RESULT: wifiStop:PASSED
```

Figure 4-76: wifiStop Test Command

## 4.9.18 wifiGetPhyRate

**Test Command Description:**

This test command is used to get the Phy rate of the Wi-Fi radio. Enter the subtest case number as "17" in Normal mode or subtest case number as "20" in Special mode in the Ubuntu Linux host. The wifiGetPhyRate test will be executed and the result will be displayed as shown in Figure 4-77.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
BIST TEST RESULT: wifiSetMcs: PASSED
+-----+
|                                     WIFI TEST                                     |
+-----+-----+-----+-----+-----+-----+
| 1 | wifiStart | 12 | wifiSetPassword |
+-----+-----+-----+-----+-----+-----+
| 2 | wifiCapPresent | 13 | wifiSetRadio |
+-----+-----+-----+-----+-----+-----+
| 3 | wifiCapAntennaCount | 14 | wifiStop |
+-----+-----+-----+-----+-----+-----+
| 4 | wifiGetVersions | 15 | wifiGetMcs |
+-----+-----+-----+-----+-----+-----+
| 5 | wifiScan | 16 | wifiSetMcs |
+-----+-----+-----+-----+-----+-----+
| 6 | wifiGetSSIDCount | 17 | wifiPhyRate |
+-----+-----+-----+-----+-----+-----+
| 7 | wifiGetSSIDInfoByIndex | 18 | wifiGetwpsPin |
+-----+-----+-----+-----+-----+-----+
| 8 | wifiGetStats | 19 | wifiSetwpsPin |
+-----+-----+-----+-----+-----+-----+
| 9 | wifiGetMAC | 20 | Run all WIFI tests |
+-----+-----+-----+-----+-----+-----+
| 10 | wifiConnect | 0 | Return to main menu |
+-----+-----+-----+-----+-----+-----+
| 11 | wifiDisconnect |
+-----+-----+-----+-----+-----+-----+
Please Enter Test to Execute: 17
5Ghz interface: 1170 Mbps
2.4Ghz interface: 481 Mbps

BIST TEST RESULT: wifiGetPhyRate: PASSED
```

Figure 4-77: wifiGetPhyRate Test Command

## 4.9.19 wifiGetMcs

### Test Command Description:

This test command is used to get the mcs value of the Wi-Fi radio. Enter the subtest case number as "15" in Normal mode or subtest case number as "18" in Special mode in the Ubuntu Linux host. The wifiGetMcs test will be executed and the result will be displayed as shown in Figure 4-78.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
| 6 | wifiGetSSIDCount | 17 | wifiPhyRate |
| 7 | wifiGetSSIDInfoByIndex | 18 | wifiGetwpsPin |
| 8 | wifiGetStats | 19 | wifiSetwpsPin |
| 9 | wifiGetMAC | 20 | Run all WIFI tests |
| 10 | wifiConnect | 0 | Return to main menu |
| 11 | wifiDisconnect |
+-----+
Please Enter Test to Execute:15

wl0: MCS SET : [ 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 ]
wl2: MCS SET : [ 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 ]
BIST TEST RESULT: wifiGetMcs:PASSED
+-----+
```

Figure 4-78: wifiGetMcs Test Command

#### 4.9.20 wifiSetMcs

##### Test Command Description:

This test command is used to set the mcs value of the Wi-Fi radio. Enter the subtest case number as "16" in Normal mode or subtest case number as "19" in Special mode in the Ubuntu Linux host. The wifiSetMcs test will be executed and the result will be displayed as shown in Figure 4-79.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
WIFI TEST
| 1 | wifiStart | 11 | wifiResetStats |
| 2 | wifiCapPresent | 12 | wifiConnect |
| 3 | wifiCapAntennaCount | 13 | wifiDisconnect |
| 4 | wifiSetAntenna | 14 | wifiConfigReset |
| 5 | wifiGetVersions | 15 | wifiSetPowerState |
| 6 | wifiScan | 16 | wifiSetRadio |
| 7 | wifiGetSSIDCount | 17 | wifiStop |
| 8 | wifiGetSSIDInfoByIndex | 18 | wifiGetMcs |
| 9 | wifiGetStats | 19 | wifiSetMcs |
| 10 | wifiGetMAC | 20 | wifiGetPhyRate |
| 0 | Return to main menu | 21 | Run all WIFI tests |
+-----+
Please Enter Test to Execute:19
Please enter the value for radio [Radio: 0/1/2]: 0
Please enter the value for mcs: 12
wl0: mcs index :12
BIST TEST RESULT: wifiSetMcs:PASSED
+-----+
```

Figure 4-79: wifiSetMcs Test Command

#### 4.9.21 wifiCheckNVRAM

##### Test Command Description:



This test is used to check the nvram file is present or not. Enter subtest case number as "21" in Special mode or subtest case number as "1" in Limited mode in Ubuntu Linux Host. The wifiCheckNVRAM test will be executed and the result will be displayed as shown in Figure 4-80

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and limited mode

**Test Screenshot:**

| WIFI TEST |                        |    |                   |
|-----------|------------------------|----|-------------------|
| 1         | wifiStart              | 11 | wifiResetStats    |
| 2         | wifiCapPresent         | 12 | wifiConnect       |
| 3         | wifiCapAntennaCount    | 13 | wifiDisconnect    |
| 4         | wifiSetAntenna         | 14 | wifiConfigReset   |
| 5         | wifiGetVersions        | 15 | wifiSetPowerState |
| 6         | wifiScan               | 16 | wifiSetRadio      |
| 7         | wifiGetSSIDCount       | 17 | wifiStop          |
| 8         | wifiGetSSIDInfoByIndex | 18 | wifiGetMcs        |
| 9         | wifiGetStats           | 19 | wifiSetMcs        |
| 10        | wifiGetMAC             | 20 | wifiGetPhyRate    |
| 0         | Return to main menu    | 21 | wifiCheckNVRAM    |

Please Enter Test to Execute:21

NVRAM FileSize is : 40749

Calculating the md5sum

Checksum Value for NVRAM file = 7f97ecced6b4be1b15604dccc27b95fb /mnt/defaults/wl/nvram.nvm

BIST TEST RESULT: wifiCheckNVRAM: **PASSED**

## 4.9.22 Run all Wi-Fi tests

**Test Command Description:**

This test is used to run all Wi-Fi test cases. Enter subtest case number as "20" in Normal mode or subtest case number as "21" in Special mode in Ubuntu Linux Host. All Wi-Fi tests will be run and the result will be displayed as shown in Figure 4-82.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
=====
                        BIST TEST REPORT
=====
wifiStart                : PASSED
wifiCapPresent           : PASSED
wifiCapAntennaCount      : PASSED
wifiGetVersions           : PASSED
wifiGetSSIDCount         : PASSED
wifiGetStats             : PASSED
wifiGetMAC               : PASSED
wifiScan                 : PASSED
wifiResetStats           : PASSED
wifiGetConnectionInfo    : PASSED
wifiGetPhyRate           : PASSED
wifiGetMcs               : PASSED
=====
|      DISPLAYING SUMMARY OF EXECUTION      |
=====
Total Number of Test cases executed :12
Test cases passed                   :12
Test cases InProgress               :0
Test cases failed                   :0
Not supported test cases            :0

See complete summary in /tmp/bist/summary.txt
+=====
```

**Figure 4-80: Wi-Fi Run All Test Command**

## 4.10 REDBUTTON RESET TEST Command

**Test Command Description:** This command is used to toggle the RBR reset pin and CGW450 will be rebooted after 5 seconds. Enter Red Button test case number as "11" in Special Mode in Ubuntu Linux Host. As the CGW450 will reboot after completion of this test, a confirmation should be entered in the Linux Host. As an input to this confirmation, enter "yes" to run the test or "no" to exit the test. The Red Button test will be executed, and the result will be displayed as shown in Figure 4-90.

**Test Pre-requisites:** NA.

**Test Mode:** Special Mode

**Test Screenshot:**



```
Please Enter Test to Execute:11
+-----+
|                                     RED_BUTTON_RESET_TEST                                     |
+-----+
#####
                The box will go for reboot
#####

Do you want to continue this test?[yes - continue, no - quit]:
yes
Testing RedButton Reset Test
█
```

## 4.11 RUNNER Test Command

**Test Command Description:** This command is used to access the Runner registers in the SOC and make sure that runner session exists. Enter Runner test case number as "12" in Normal Mode or subtest case number as "12" in Special Mode in Ubuntu Linux Host. The Runner test will be executed, and the result will be displayed as shown in Figure 4-91 and Figure 4-92.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
AT&T BIST MAIN MENU
+-----+
| 1 | Box Info Test | 11 | Runner Test |
+-----+
| 2 | Control Test  | 12 | USB Test  |
+-----+
| 3 | Ethernet Test | 13 | PON Test  |
+-----+
| 4 | FLASH Test    | 14 | Client Test |
+-----+
| 5 | LogCopy Test  | 15 | LED Test   |
+-----+
| 6 | SDRAM Test    | 16 | PCM Test   |
+-----+
| 7 | Network Test  | 17 | TILT SENSOR test |
+-----+
| 8 | Temperature Test | 18 | Cellular Test |
+-----+
| 9 | WiFi Test     | 19 | Run all Test |
+-----+
| 10 | SFP Test      | 20 | Display summary |
+-----+
| 0 | Exit          |
+-----+

Please Enter Test to Execute:11
+-----+
|                                     RUNNER TEST                                     |
+-----+

Displaying details of lan1 via bdmf shell
Object: port/index=lan6. Object type: port. Owned by: system
=====
index : lan6
speed : not set
cfg : {enac=emac6,sal=yes,dal=yes,sal_miss_action=host,dal_miss_action=host,physical_port=port6,ls_fc_enable=no,control_sid=wan0,ae_enable=no,min_packet_size=64,skip_mcas
t_whitelist_lkp=yes,dos_attack_detection_disable=no}
ta_cfg : {egress_tm={egress_tm/dir=us,index=0},discard_prty=low}
sa_limit : {max_sa=1,min_sa=0,min_sa=0}
stat : {rx_valid_pkt=0,rx_crc_error_pkt=0,rx_discard_1=0,rx_discard_2=0,bbh_drop_1=0,bbh_drop_2=0,bbh_drop_3=0,rx_discard_max_length=0,rx_discard_min_length=0,tx_valid_pkt
=0,tx_discard=0,discard_pkt=0,rx_bytes=0,rx_multicast_pkt=0,rx_broadcast_pkt=0,tx_bytes=0,tx_multicast_pkt=0,tx_broadcast_pkt=0,tx_unicast_pkt=0,rx_frag_discard=0}
debug_stat : {bbh_rx_crc_err_ploam_drop=0,bbh_rx_third_flow_drop=0,bbh_rx_sop_after_sop_drop=0,bbh_rx_no_sbpw_bn_ploam_drop=0,bbh_rx_sdma_cd_drop=0,bbh_rx_ploam_no_sdma_cd_dr
op=0,bbh_rx_ploam_disp_cong_drop=0}
Flow control : {rate=0,burst_size=0,fc_thresh=0,src_address=00:00:00:00:00:00,ingress_congestion=no}
ingress_rate_limit : {traffic_types=0,police=null}
```

Figure 4-83: Runner Test Command



## 4.12 USB Test Commands

**Test Command Description:** This test command is used to get the number of USB ports available. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in the Ubuntu Linux host. The usbCapCount test will be executed and the result will be displayed as shown in Figure 4-94.

### Test Mode: Special Mode and Normal Modes

```
+-----+
Please Enter Test to Execute:12
+-----+
|                USB TEST                |
+-----+
| 1 | usbCapCount          | 5 | usbBulkTestIn          |
+-----+
| 2 | usbMemoryFSTest      | 6 | Run all USB tests       |
+-----+
| 3 | usbGetBulkPresent     | 0 | Return to main menu     |
+-----+
| 4 | usbBulkTestOut        |
+-----+
Please Enter Test to Execute:1
Displaying number of USB ports available:

USBCapCount:2

BIST TEST RESULT: usbCapCount:PASSED
```





```
+-----+
|                                     |
|               USB TEST             |
|-----+-----+
| 1 | usbCapCount                    | 5 | usbBulkTestIn  |
|-----+-----+
| 2 | usbMemoryFSTest                | 6 | Run all USB tests |
|-----+-----+
| 3 | usbGetBulkPresent               | 0 | Return to main menu |
|-----+-----+
| 4 | usbBulkTestOut                 |
|-----+-----+
Please Enter Test to Execute:3
BIST TEST RESULT usbGetBulkPresent: PASSED
```

Figure 4-87: usbGetBulkPresentTest Command

## 4.13 SFP Test Commands

### **Test Command Description:**

This test is used to check the functionalities of SFP interface. Enter SFP test case number as "10" in Ubuntu Linux Host. and it will display sub menu for SFP tests as in Figure 4-86.

**Test Pre-requisites:** SFP optics must be inserted in optic port

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:10:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170      |
+-----+
|                                     |
|               CGW450 SPECIAL BIST MAIN MENU               |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test          |
| 2 | Control Test           | 13 | USB Test               |
| 3 | Ethernet Test          | 14 | PON Test               |
| 4 | FLASH Test             | 15 | Client Test             |
| 5 | LogCopy Test           | 16 | LED Test               |
| 6 | SDRAM Test             | 17 | PCM Test               |
| 7 | Network Test           | 18 | TILT SENSOR test       |
| 8 | Temperature Test       | 19 | Cellular Test           |
| 9 | WiFi Test              | 20 | Run All Test            |
| 10 | SFP Test               | 21 | Display summary         |
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST         |
+-----+
|                                     |
| 0 | EXIT                    |
+-----+
Please Enter Test to Execute: |
```

Figure 4-88: SFP Test

### 4.13.1 sfpDomMonitoringTest

#### Test Command Description:

This test case is used to get the details of the SFP inserted to the target.

Enter SFP DOM test case number as "1" in Normal mode or subtest case number as "1" in Special mode in SFP test menu. The SFP DOM test will be executed and the result will be displayed as shown in Figure 4-87 and Figure 4-88.

**Test Pre-requisites:** SFP optics must be inserted in optic ports.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|                                     |
|                               SFP TEST                               |
|                                     |
| 1 | sfpEepromTest                | 3 | Run all SFP tests          |
|                                     |
| 2 | PRBSGenerate                 | 0 | Return to main menu        |
|                                     |
+-----+
Please Enter Test to Execute:1
Testing I2C SFP EEPROM

Optics Details:
=====

Optics Type       : SFP
Connector Type    : LC
Vendor Name       : SOURCEPHOTONICS
Vendor PN         : SPGBLXIDFN
Vendor Rev        : 10
Laser Wavelength  : 1310 nm
Vendor SN         : D4L2012108
Datecode          : 130322
Diagnostic support : DOM

Diagnostic Optical Monitoring Information
=====
Transceiver Status:
-----
Current Temperature : 33.718750C
Current Vcc         : 3.299200V
Tx Bias Current     : 0.000000mA
Tx Power            : 0.000000mW, No Power
rx Power            : 0.000000mW, No Power
Transceiver Operational Status
-----
No Fault in TX.
Laser ON

BIST TEST RESULT: sfpDomMonitoringTest: PASSED
```

Figure 4-90: SFP Test Command (1)



```
+-----+
|                                     |
|                                     | SFP TEST                             |
|                                     |                                     |
+-----+-----+-----+-----+
| 1 | sfpEepromTest                  | 3 | Run all SFP tests                |
+-----+-----+-----+-----+
| 2 | PRBSGenerate                   | 0 | Return to main menu                |
+-----+-----+-----+-----+
Please Enter Test to Execute:1
Testing I2C SFP EEPROM

Optics Details:
=====

Optics Type       : SFP
Connector Type    : LC
Vendor Name       : SOURCEPHOTONICS
Vendor PN         : SPGBLXIDFN
Vendor Rev        : 10
Laser Wavelength  : 1310 nm
Vendor SN         : D4L2012108
Datecode          : 130322
Diagnostic support : DOM

Diagnostic Optical Monitoring Information
=====
Transceiver Status:
-----
Current Temperature : 33.781250C
Current Vcc         : 3.302400V
Tx Bias Current     : 0.000000mA
Tx Power            : 0.000000mW, No Power
rx Power            : 0.000000mW, No Power
Transceiver Operational Status
-----
No Fault in TX.
Laser ON

BIST TEST RESULT: sfpDomMonitoringTest:PASSED
```

Figure 4-91: SFP Test Command (2)



## 4.13.2 sfpPrbsGenerate

### Test Command Description:

This test case is used to Generate the PRBS pattern from SFP device.

Enter PRBS test case number as "2" in Normal mode or subtest case number as "2" in Special mode in SFP test menu. The PRBS Generation test will be executed and the result will be displayed as shown in Figure 4-89. PRBS should be verified on the other end by external device.

Supported PRBS pattern, WAN type, Host tracking will be displayed in the test selection. User has to select this arguments as Input to PRBS generate test.

Test Input Arguments:

- PRBS pattern: 1:PRBS\_7, 2:PRBS\_15, 3:PRBS\_23, 4:PRBS\_31, 5:PRBS\_9, 6:PRBS\_8180
- wan\_type: 1:GPON, 2:EPON\_1G, 3:EPON\_2G, 4:AE, 5:AE\_2\_5G, 6:AE\_10G, 7:EPON\_10G\_SYM, 8:EPON\_10G\_ASYM, 9:XGPON\_10G\_2\_5G, 10:NGPON\_10G\_10G/XGS

**Test Pre-requisites:** SFP optics must be inserted in optic ports.

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
+-----+
|                                     SFP TEST                                     |
+-----+
| 1 | sfpEepromTest                   | 3 | Run all SFP tests                   |
+-----+
| 2 | PRBSGenerate                     | 0 | Return to main menu                   |
+-----+
Please Enter Test to Execute:2
PRBS Pattern      : 1:PRBS_7, 2:PRBS_15, 3:PRBS_23, 4:PRBS_31,
                   5:PRBS_9, 6:PRBS_8180
wan_type         : 1:GPON, 2:EPON_1G, 3:EPON_2G, 4:AE, 5:AE_2_5G,
                   6:AE_10G, 7:EPON_10G_SYM, 8:EPON_10G_ASYM,
                   9:XGPON_10G_2_5G, 10:NGPON_10G_10G/XGS
host_track       : 0:disable, 1:enable
enable           : 0:disable, 1:enable

Please Enter PRBS Pattern :1
Please Enter WAN Type:1
Please Enter Host Tracking:0
Please Enter Enable/Disable:1
Generate PRBS

BIST TEST RESULT: sfpPrbsGenerate:PASSED
```

Figure 4-92: SFP PRBS Generate Test Command



## 4.14 PON Test Commands

### **Test Command Description:**

This test gets the RdpWanType and verifies access to serdes registers. Enter the test case number as "13" in Normal Mode or subtest case number as "14" in Special Mode in Ubuntu Linux host. All PON tests will be run and the result will be displayed as shown in Figure 4-103.

**Test Pre-requisites:** RdpWanType should be set as 'GPON' from Linux shell before executing PON test cases. Reboot should be given after set the RdpWanType.

```
# pspctl set RdpWanType GPON
```

```
# reboot
```

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



|                                        |                     |    |                  |
|----------------------------------------|---------------------|----|------------------|
| AT&T BIST SOFTWARE - Broadband Gateway |                     |    |                  |
| MODEL NAME                             | CGW450_400_SGD      |    |                  |
| BIST MODE                              | NORMAL_MODE         |    |                  |
| Software                               | TURQUOISE           |    |                  |
| Software Version                       | 4.16                |    |                  |
| BIST SW VERSION                        | 10.0c2_RG           |    |                  |
| BIST CLIENT VERSION                    | 1.0                 |    |                  |
| HW BOARD ID                            | 0x20                |    |                  |
| Serial Number                          | X94EA2CY000002      |    |                  |
| HW Version                             | 1.2(BCRM6813)       |    |                  |
| MAC ADDRESS                            | 38:B8:00:1D:D6:0C   |    |                  |
| WIFI SSID                              | ATTdPg8zWE          |    |                  |
| WIFI PASSWORD                          | 2#np62h=5rw5        |    |                  |
| DEVICE ACCESS CODE                     | =2@?@84240          |    |                  |
| CGW450 SPECIAL BIST MAIN MENU          |                     |    |                  |
| 1                                      | Box Info Test       | 12 | Runner Test      |
| 2                                      | Control Test        | 13 | USB Test         |
| 3                                      | Ethernet Test       | 14 | PON Test         |
| 4                                      | FLASH Test          | 15 | Client Test      |
| 5                                      | LogCopy Test        | 16 | LED Test         |
| 6                                      | SDRAM Test          | 17 | PCM Test         |
| 7                                      | Network Test        | 18 | TILT SENSOR test |
| 8                                      | Temperature Test    | 19 | Cellular Test    |
| 9                                      | WiFi Test           | 20 | Run All Test     |
| 10                                     | SFP Test            | 21 | Display summary  |
| 11                                     | RedButtonReset Test | 22 | LED MATRIX TEST  |
|                                        |                     | 0  | EXIT             |

Figure 4-103: PON Test commands



## 4.14.1 gponModeGet

### Test Command Description:

This command is used to get the GPON Mode in BGW. Enter the subtest case number as "1" in Normal Mode or subtest case number as "1" in Special Mode in Ubuntu Linux host. The gponModeGet test will be executed and the result will be displayed as shown in Figure 4-104.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
Please Enter Test to Execute:14
+-----+
|                                     PON TEST                                     |
+-----+
| 1 | gponModeGet                      | 5 | gponStateGet                      |
+-----+
| 2 | serDesAccessTest                  | 6 | Run all PON tests                  |
+-----+
| 3 | gponONUIdGet                      | 0 | Return to main menu                |
+-----+
| 4 | gponSNPwGet                      |                                     |
+-----+
Please Enter Test to Execute:2

Serdes register is successfully written

BIST TEST RESULT: serDesAccessTest:PASSED
+-----+
```

Figure 4-104: GponModeGet Test Command

## 4.14.2 serdesAccessTest

### Test Command Description:

This command is used to check the serdes register access. Enter the test case number as "2" in Normal Mode or subtest case number as "2" in Special Mode in the Ubuntu Linux host. The serdesAccessTest test will be executed and the result will be displayed as shown in Figure 4-105.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode and Special Mode

**Test Screenshot:**



```
+-----+
|                                     PON TEST                                     |
+-----+
| 1 | gponModeGet                    | 5 | gponStateGet                    |
+-----+
| 2 | serDesAccessTest                | 6 | Run all PON tests                |
+-----+
| 3 | gponONUIdGet                    | 0 | Return to main menu                |
+-----+
| 4 | gponSNPwdGet                    |                                     |
+-----+
Please Enter Test to Execute:2

Serdes register is successfully written

BIST TEST RESULT: serDesAccessTest:PASSED
```

Figure 4-105: SerdesAccessTest command

### 4.14.3 gponONUIdGet

**Test Command Description:**

This command is used to get the ONU ID number. Enter the test case number as "3" in Normal Mode or subtest case number as "3" in Special Mode in the Ubuntu Linux host. The gponONUIdGet test will be executed and the result will be displayed as shown in Figure 4-106.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode and Special Mode

**Test Screenshot:**



```
+-----+
|                                     PON TEST                                     |
+-----+-----+
| 1 | gponModeGet                    | 5 | gponStateGet                    |
+-----+-----+
| 2 | serDesAccessTest                | 6 | Run all PON tests                |
+-----+-----+
| 3 | gponONUIdGet                    | 0 | Return to main menu                |
+-----+-----+
| 4 | gponSNPwdGet                    |                                     |
+-----+-----+
Please Enter Test to Execute:3

===== ONU ID =====

      ONU ID: 255

=====

gponONUIdGet: PASSED
```

Figure 4-106: gponONUIdGet command

#### 4.14.4 gponSNPwdGet

**Test Command Description:**

This command is used to get the serial number and password. Enter the test case number as "4" in Normal Mode or subtest case number as "4" in Special Mode in the Ubuntu Linux host. The gponSNPwdGet test will be executed and the result will be displayed as shown in Figure 4-107.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode and Special Mode

**Test Screenshot:**



```
+-----+
|                                     |
|               PON TEST             |
|-----+-----+
| 1 | gponModeGet                    | 5 | gponStateGet                    |
|-----+-----+
| 2 | serDesAccessTest               | 6 | Run all PON tests                |
|-----+-----+
| 3 | gponONUIdGet                   | 0 | Return to main menu              |
|-----+-----+
| 4 | gponSNPwdGet                   |                                     |
|-----+-----+
Please Enter Test to Execute:4

===== Serial Number & Password =====

Serial Number: 42-52-43-4D-12-34-56-78
Password      : 20-20-20-20-20-20-20-20-20-20-00-00-00-00-00-00-
                00-00-00-00-00-00-00-00-00-00-00-00-00-00-00-
                00-00-00-00

=====

BIST TEST RESULT: gponSNPwdGet: PASSED
```

Figure 4-107: gponSNPwdGet command

#### 4.14.5 gponStateGet

**Test Command Description:**

This command is used to get the control state status. Enter the test case number as "5" in Normal Mode or subtest case number as "5" in Special Mode in the Ubuntu Linux host. The gponStateGet test will be executed and the result will be displayed as shown in Figure 4-108.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode and Special Mode

**Test Screenshot:**



```
+-----+
|                                     |
|               PON TEST             |
|-----+-----+
| 1 | gponModeGet                    | 5 | gponStateGet                    |
|-----+-----+
| 2 | serDesAccessTest                | 6 | Run all PON tests                |
|-----+-----+
| 3 | gponONUIdGet                    | 0 | Return to main menu                |
|-----+-----+
| 4 | gponSNPwdGet                    |                                     |
|-----+-----+
Please Enter Test to Execute:5

===== Control State Status =====

Administrative state: ON
Operational state: INIT (01)

=====

BIST TEST RESULT: gponStateGet:PASSED
```

Figure 4-108: gponStateGet command

#### 4.14.6 Run all PON Tests

**Test Command Description:**

This test is used to run all PON test cases. Enter subtest case number as "6" in Normal Mode or subtest case number as "6" in Special Mode in Ubuntu Linux Host. All PON tests will be run and the result will be displayed as shown in Figure 4-109.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|                                     PON TEST                                     |
+-----+
| 1 | gponModeGet                    | 5 | gponStateGet                    |
+-----+
| 2 | serDesAccessTest                | 6 | Run all PON tests                |
+-----+
| 3 | gponONUIIdGet                  | 0 | Return to main menu                |
+-----+
| 4 | gponSNPwdGet                    |                                     |
+-----+
Please Enter Test to Execute:6
+-----+
|                                     PON TEST                                     |
+-----+

RdpaWanType: GPON, WanRate: 0101

BIST TEST RESULT: gponModeGet:PASSED
+-----+

Serdes register is successfully written

BIST TEST RESULT: serDesAccessTest:PASSED
+-----+

===== ONU ID =====

    ONU ID: 255

=====

BIST TEST RESULT: gponONUIDGet:PASSED
+-----+

===== Control State Status =====

    Administrative state: ON
    Operational      state: INIT (01)

=====

BIST TEST RESULT: gponStateGet:PASSED
+-----+
```

**Figure 4-109: Run All PON tests**



## 4.15 Client Test Commands

### Test Command Description:

This test case is used to validate the image information. Enter test case number as "14" in Normal Mode or subtest case number as "15" in Special Mode in Ubuntu Linux Host and it will display submenu for client test as shown in Figure 4-110.

### Test Pre-requisites: NA

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL_MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID         | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:1D:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                                     |
|           CGW450 SPECIAL BIST MAIN MENU           |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test           |
| 2 | Control Test           | 13 | USB Test               |
| 3 | Ethernet Test          | 14 | PON Test              |
| 4 | FLASH Test             | 15 | Client Test           |
| 5 | LogCopy Test           | 16 | LED Test              |
| 6 | SDRAM Test             | 17 | PCM Test              |
| 7 | Network Test           | 18 | TILT SENSOR test      |
| 8 | Temperature Test       | 19 | Cellular Test          |
| 9 | WiFi Test              | 20 | Run All Test           |
| 10 | SFP Test              | 21 | Display summary        |
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST        |
+-----+
|                                     |
|                                     | 0 | EXIT                   |
+-----+
Please Enter Test to Execute: |
```

Figure 4-110: Client Tests



## 4.15.1 ClientSetBootFlag

### Test Command Description:

This test case is used to set boot flag from the flash. Enter subtest case number as "1" in Special Mode in Ubuntu Linux Host. The ClientSetBootFlag test will be executed and the result will be displayed as shown in Figure 4-111.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

### Test Screenshot:

```
| 1 | ClientSetBootFlag | 5 | ClientGetJtagPwdLockStatus |
+-----+
| 2 | ClientGetImageInfo | 6 | ClientGetOtpCustLockStatus |
+-----+
| 3 | ClientGetSecMode | 7 | Run all client tests |
+-----+
| 4 | ClientGetSecImageInfo | 0 | Return to main menu |
+-----+
Please Enter Test to Execute:1

Current Boot Image Flag = [53]

New Image Flag is Set,so modifying to previous Image

BOOT Image Changed from [53] to [49]
BOOT Image Change :[SUCCESS]

Image Boot Flag Set back to Current =[53]

BIST TEST RESULT: ClientSetBootFlag:PASSED
+-----+
```

Figure 4-111: ClientSetBootFlag Test

## 4.15.2 ClientGetImageInfo

### Test Command Description:

This test case is used to get image information from the flash. Enter subtest case number as "1" in Normal Mode or subtest case number as "2" in Special Mode in Ubuntu Linux Host. The ClientGetImageInfo test will be executed and the result will be displayed as shown in Figure 4-112 and Figure 4-113.

Note: Manufacturing partition has to be updated properly otherwise this test case will fail.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
|                               CLIENT TEST                               |
+-----+
| 1 | ClientSetBootFlag          | 5 | ClientGetJtagPwdLockStatus |
+-----+
| 2 | ClientGetImageInfo         | 6 | ClientGetOtpCustLockStatus |
+-----+
| 3 | ClientGetSecMode           | 7 | Run all client tests      |
+-----+
| 4 | ClientGetSecImageInfo      | 0 | Return to main menu       |
+-----+
Please Enter Test to Execute:2
Testing Client Get Info:

ImageName:ACTIVE
Image Number:4.15.2

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
SW Build Date:

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
HW Manufacturer:WNC
```

**Figure 4-112: ClientGetImageInfo Tests (1)**



```
+-----+
Testing Client Get Info:

ImageName:ACTIVE
HW Model:CGW150_400_SGA

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
MFG Information:WNC

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
SW Build ID:Turquoise 2.0

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
SW Major Version:4

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
SW Minor Version:15
```



```
+-----+
Testing Client Get Info:

ImageName:ACTIVE
SW Minor Version:15

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
Serial Number:XE15A2130A0001

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
BOARD ID:0x20000000

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
Testing Client Get Info:

ImageName:ACTIVE
HW VERSION:0.1-1(BCM4912)

BIST TEST RESULT: ClientGetImageInfo:PASSED
+-----+
```

Figure 4-113: ClientGetImageInfo Tests (2)

### 4.15.3 ClientGetSecMode

#### Test Command Description:

This test case is used to get SoC Secure Mode type. Enter subtest case number as "2" in Normal Mode or subtest case number as "3" in Special Mode in Ubuntu Linux Host. The ClientGetSecMode test will be executed and the result will be displayed as shown in Figure 4-114.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
| CLIENT TEST |
+-----+
| 1 | ClientSetBootFlag | 5 | ClientGetJtagPwdLockStatus |
+-----+
| 2 | ClientGetImageInfo | 6 | ClientGet0tpCustLockStatus |
+-----+
| 3 | ClientGetSecMode | 7 | Run all client tests |
+-----+
| 4 | ClientGetSecImageInfo | 0 | Return to main menu |
+-----+
Please Enter Test to Execute:3

SoC Secure Mode : Un-Secure
```



Figure 4-114: ClientGetSecMode Command

#### 4.15.4 ClientGetSecImageInfo

**Test Command Description:**

This test case is used to get the image type from primary and backup partitions whether the image is secure or not. Enter subtest case number as "3" in Normal Mode or subtest case number as "4" in Special Mode in Ubuntu Linux Host. The ClientGetSecImageInfo test will be executed and the result will be displayed as shown in Figure 4-115.

**Test Pre-requisites:** NA**Test Mode:** Special Mode and Normal Mode**Test Screenshot:**

```
Please Enter Test to Execute:4
Please Enter Image Partition [1:Partition1/2:Partition2]:1

Secure Image Type [Partition-1]: Un-Secure

BIST TEST RESULT: ClientGetSecImageInfo:PASSED
+-----+
| CLIENT TEST |
+-----+
| 1 | ClientSetBootFlag | 5 | ClientGetJtagPwdLockStatus |
+-----+
| 2 | ClientGetImageInfo | 6 | ClientGetOtpCustLockStatus |
+-----+
| 3 | ClientGetSecMode | 7 | Run all Client tests |
+-----+
| 4 | ClientGetSecImageInfo | 0 | Return to main menu |
+-----+

Please Enter Test to Execute:4
Please Enter Image Partition [1:Partition1/2:Partition2]:2

Secure Image Type [Partition-2]: Un-Secure

BIST TEST RESULT: ClientGetSecImageInfo:PASSED
+-----+
| CLIENT TEST |
+-----+
| 1 | ClientSetBootFlag | 5 | ClientGetJtagPwdLockStatus |
+-----+
| 2 | ClientGetImageInfo | 6 | ClientGetOtpCustLockStatus |
+-----+
| 3 | ClientGetSecMode | 7 | Run all Client tests |
+-----+
| 4 | ClientGetSecImageInfo | 0 | Return to main menu |
+-----+
```

Figure 4-115: ClientGetSecImageInfo Command





#### 4.15.4.1 CSHELL

**Test Command Description:**

This test case is used to execute the Cshell commands. Enter subtest case number as "1" Normal Mode in Ubuntu Linux Host. Type the command and press Enter. The command will be executed, and the result will be displayed as shown in Figure 4-118.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
+-----+
Please Enter Test to Execute:14
+-----+
|                                     CLIENT TEST                                     |
+-----+
| 1 | ClientGetImageInfo              | 5 | ClientGetOtpCustLockStatus |
+-----+
| 2 | ClientGetSecMode                | 6 | ClientRunShellCommands    |
+-----+
| 3 | ClientGetSecImageInfo           | 7 | Run all client tests      |
+-----+
| 4 | ClientGetJtagPwdLockStatus      | 0 | Return to main menu       |
+-----+
Please Enter Test to Execute:6
+-----+
|                                     SHELL Menu                                     |
+-----+
| 1 | CSHELL                          | 3 | LINUXSHELL                 |
+-----+
| 2 | NSHELL                          | 0 | Return to Client menu     |
+-----+
Please Select Shell to Use:1
+-----+
|                                     C SHELL COMMANDS                             |
+-----+
| 0 | Return to Shell Menu              |
+-----+
Please Enter Command to Execute:who
Shell users:
                TCP  unit 0 (192.168.1.10)

BIST TEST RESULT: RunShellCommand:PASSED
+-----+
```

Figure 4-118: CSHELL Tests

#### 4.15.4.2 NSHELL

**Test Command Description:**

This test case is used to execute the Nshell commands. Enter subtest case number as "2" in Normal Mode in Ubuntu Linux Host. Type the command and press Enter. The command will be executed, and the result will be displayed as shown in Figure 4-119.

**Test Pre-requisites:** NA



**Test Mode:** Normal Mode

**Test Screenshot:**

```
+-----+
|                                     SHELL Menu                                     |
+-----+
| 1 | CSHELL                         | 3 | LINUXSHELL                         |
+-----+
| 2 | NSHELL                         | 0 | Return to Client menu                     |
+-----+
Please Select Shell to Use:2
+-----+
|                                     N SHELL COMMANDS                             |
+-----+
| 0 | Return to Shell Menu                     |
+-----+
Please Enter Command to Execute:mfg show
familyCode   : 0x00000000
serialNumber : 0x0000
customer     : 70
accessCode   : admin123
wirelessKey  : ysygf74g4=h5
wirelessSSID : ATT9Tgh4fc
serNumStr    : XE15A2130A0001
installDate  : 01/01/70 00:00:00 AM
baseMACAddr  : 20:78:52:F5:AB:01
maxMACAddrs  : 16
cfeFWUpdate  : 0
second wirelessKey : hfur2$dEfvs!
second wirelessSSID : vATT xR2
hwRev        : 0
mfgId        :
hwVersion    : 0.1-1(BCM4912)

BIST TEST RESULT: RunShellCommand:PASSED
+-----+
```

Figure 4-119: NSHELL Tests

#### 4.15.4.3 LINUXSHELL

**Test Command Description:**

This test case is used to execute the Linux shell commands. Enter subtest case number as "3" in Normal Mode in Ubuntu Linux Host. Type the command and press Enter. The command will be executed, and the result will be displayed as shown in Figure 4-120.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**



```
+-----+
|                                     |
|               CLIENT TEST          |
|-----+-----+
| 1 | ClientGetImageInfo             | 5 | ClientGetOtpCustLockStatus |
|-----+-----+
| 2 | ClientGetSecMode               | 6 | ClientRunShellCommands   |
|-----+-----+
| 3 | ClientGetSecImageInfo          | 7 | Run all Client tests    |
|-----+-----+
| 4 | ClientGetJtagPwdLockStatus     | 0 | Return to main menu     |
|-----+-----+
Please Enter Test to Execute:6
+-----+
|               SHELL Menu          |
|-----+-----+
| 1 | CSHELL                        | 3 | LINUXSHELL              |
|-----+-----+
| 2 | NSHELL                        | 0 | Return to Client menu    |
|-----+-----+
Please Select Shell to Use:3
+-----+
|               LINUX SHELL COMMANDS |
|-----+-----+
| 0 | Return to Shell Menu          |
|-----+-----+
Please Enter Command to Execute:uname
Linux
BIST TEST RESULT: RunShellCommand:PASSED
+-----+
```

Figure 4-120: LINUXSHELL Tests

## 4.16 LED Test Command

### Test Command Description:

This test checks the functionality of the 2 LEDs present in RG - Service LED and WPS LED. Enter the test case number as "15" in the Normal Mode or case number as "16" in the Special Mode in Ubuntu Linux host.

### Test Pre-requisites: NA

### Test Screenshot:



```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG       |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:10:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170      |
+-----+
|                                     |
|               CGW450 SPECIAL BIST MAIN MENU               |
|                                     |
| 1 | Box Info Test           | 12 | Runner Test          |
|-----|-----|
| 2 | Control Test           | 13 | USB Test                |
|-----|-----|
| 3 | Ethernet Test          | 14 | PON Test                |
|-----|-----|
| 4 | FLASH Test             | 15 | Client Test             |
|-----|-----|
| 5 | LogCopy Test           | 16 | LED Test                 |
|-----|-----|
| 6 | SDRAM Test             | 17 | PCM Test                 |
|-----|-----|
| 7 | Network Test           | 18 | TILT SENSOR test         |
|-----|-----|
| 8 | Temperature Test       | 19 | Cellular Test            |
|-----|-----|
| 9 | WiFi Test              | 20 | Run All Test             |
|-----|-----|
| 10 | SFP Test               | 21 | Display summary          |
|-----|-----|
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST          |
|-----|-----|
|                                     |
|                                     | 0 | EXIT                    |
|-----|-----|
Please Enter Test to Execute: |
```

Figure 4-121: LED Test Commands

### 4.16.1 ledCapLEDs

#### Test Command Description:

This test case displays the LEDs supported. Enter the test case number as "1" in the Normal Mode or case number as "1" in the Special Mode in Ubuntu Linux host. The ledCapLEDs test will be executed and the result will be displayed as shown in Figure 4-122.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|                                     LED TEST                                     |
+-----+
| 1 | ledCapLEDs                      | 6 | setLedBlinkColor                    |
+-----+
| 2 | ledSetState                      | 7 | setLedBlinkRate                    |
+-----+
| 3 | getLedColor                      | 8 | ledSetLuminosity                  |
+-----+
| 4 | setLedColor                      | 9 | Run all LED tests                  |
+-----+
| 5 | ledSetPattern                    | 0 | Return to main menu                |
+-----+

Please Enter Test to Execute:1

open LED dev node success!
Service led1 White: Available
Service led2 Green: Available
Service led3 Red : Available
Service led4 Blue : Available
WPS led1 Green : Available
WPS led2 Red : Available

BIST TEST RESULT: ledCapLEDs:PASSED
+-----+
```

Figure 4-122: ledCapLEDs Test Command

## 4.16.2 ledSetState

### **Test Command Description:**

This test sets the specified led with its color. Enter the test case number as "2" in the Normal Mode or case number as "2" in the Special Mode in Ubuntu Linux host. The ledSetState test will be executed and the result will be displayed as shown in Figure 4-123 and Figure 4-124.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
Setting service_led2 on

BIST TEST RESULT: ledSetState: PASSED
+-----+
Setting service_led2 off

BIST TEST RESULT: ledSetState: PASSED
+-----+
Setting service_led3 on

BIST TEST RESULT: ledSetState: PASSED
+-----+
+-----+
setting service_led3 off

BIST TEST RESULT: ledSetState: PASSED
+-----+
setting service_led4 on

BIST TEST RESULT: ledSetState: PASSED
```

October 14, 2022AT&T Proprietary (Internal Use Only).Page 120  
Not for use or disclosure outside the AT&T companies except under written agreement.



```
+-----+
setting service_led4 off
BIST TEST RESULT: ledSetState: PASSED
+-----+
Setting wps_led1 on
BIST TEST RESULT: ledSetState: PASSED
+-----+
+-----+
setting wps_led1 off
BIST TEST RESULT: ledSetState: PASSED
+-----+
setting wps_led2 on
BIST TEST RESULT: ledSetState: PASSED
+-----+
+-----+
setting wps_led2 off
BIST TEST RESULT: ledSetState: PASSED
+-----+
```

### 4.16.3 getLedColor

**Test Command Description:**

This test case displays the color of the LEDs supported. Enter the test case number as "3" in the Normal Mode or case number as "3" in the Special Mode in Ubuntu Linux host. The getLedColor test will be executed and the result will be displayed as shown in Figure 4-125.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|                                     LED TEST                                     |
+-----+
| 1 | ledCapLEDs                      | 6 | setLedBlinkColor                    |
+-----+
| 2 | ledSetState                     | 7 | setLedBlinkRate                    |
+-----+
| 3 | getLedColor                     | 8 | ledSetLuminosity                   |
+-----+
| 4 | setLedColor                     | 9 | Run all LED tests                  |
+-----+
| 5 | ledSetPattern                   | 0 | Return to main menu                |
+-----+

Please Enter Test to Execute:3
Printing the service_led1 color

White

BIST TEST RESULT: getLedColor:PASSED
+-----+
Printing the service_led2 color

Green

BIST TEST RESULT: getLedColor:PASSED
+-----+
Printing the service_led3 color

Red

+-----+
Printing the service_led4 color

Blue

BIST TEST RESULT: getLedColor:PASSED
+-----+
Printing the wps_led1 color

LED_OFF

BIST TEST RESULT: getLedColor:PASSED
+-----+
Printing the wps_led2 color

LED_OFF

BIST TEST RESULT: getLedColor:PASSED
```

Figure 4-125: getLedColor Test Command



## 4.16.4 setLedColor

### Test Command Description:

This test case sets the specified color to the respective led. Enter the test case number as "4" in the Normal Mode or case number as "4" in the Special Mode in Ubuntu Linux host. The setLedColor test will be executed and the result will be displayed as shown in Figure 4-126.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
+-----+
|                                     LED TEST                                     |
+-----+
| 1 | ledCapLEDs                      | 6 | setLedBlinkColor                    |
+-----+
| 2 | ledSetState                     | 7 | setLedBlinkRate                    |
+-----+
| 3 | getLedColor                     | 8 | ledSetLuminosity                   |
+-----+
| 4 | setLedColor                     | 9 | Run all LED tests                  |
+-----+
| 5 | ledSetPattern                   | 0 | Return to main menu                |
+-----+

Please Enter Test to Execute:4
Setting led with blue color

BIST TEST RESULT: setLedColor:PASSED
+-----+
Setting led with red color

BIST TEST RESULT: setLedColor:PASSED
+-----+
Setting led with green color

BIST TEST RESULT: setLedColor:PASSED
+-----+
Setting led with white color

BIST TEST RESULT: setLedColor:PASSED
+-----+
```

Figure 4-126: setLedColor Test Command

## 4.16.5 ledSetPattern

### Test Command Description:

This test case sets the pattern specified by the user in all LEDs according to the pattern. Enter the test case number as "5" in the Normal Mode or case number as "5" in



the Special Mode in Ubuntu Linux host. The ledSetPattern test will be executed and the result will be displayed as shown in Figure 4-127.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
|                                     LED TEST                                     |
+-----+
| 1 | ledCapLEDs                      | 6 | setLedBlinkColor                    |
+-----+
| 2 | ledSetState                     | 7 | setLedBlinkRate                    |
+-----+
| 3 | getLedColor                     | 8 | ledSetLuminosity                   |
+-----+
| 4 | setLedColor                     | 9 | Run all LED tests                  |
+-----+
| 5 | ledSetPattern                   | 0 | Return to main menu                |
+-----+

Please Enter Test to Execute:5
Setting led pattern to allAlternate

BIST TEST RESULT: ledSetPattern:PASSED
+-----+
Setting led pattern to breathe

BIST TEST RESULT: ledSetPattern:PASSED
+-----+
```

Figure 4-127: ledSetPattern Test Command

## 4.16.6 setLedBlinkColor

**Test Command Description:**

This test case sets the specified blink color in the specified LED. The input is received from the user. Enter the test case number as "6" in the Normal Mode or case number as "6" in the Special Mode in Ubuntu Linux host. The setLedBlinkColor test will be executed and the result will be displayed as shown in Figure 4-128.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|                                     LED TEST                                     |
+-----+
| 1 | ledCapLEDs                      | 6 | setLedBlinkColor                    |
+-----+
| 2 | ledSetState                     | 7 | setLedBlinkRate                    |
+-----+
| 3 | getLedColor                     | 8 | ledSetLuminosity                  |
+-----+
| 4 | setLedColor                     | 9 | Run all LED tests                  |
+-----+
| 5 | ledSetPattern                   | 0 | Return to main menu                |
+-----+

Please Enter Test to Execute:6
Setting blink color to blue

BIST TEST RESULT: setLedBlinkColor:PASSED
+-----+
Setting blink color to red

BIST TEST RESULT: setLedBlinkColor:PASSED
+-----+
Setting blink color to green

BIST TEST RESULT: setLedBlinkColor:PASSED
+-----+
Setting blink color to white

BIST TEST RESULT: setLedBlinkColor:PASSED
+-----+
```

Figure 4-128: setLedBlinkColor Test Command

#### 4.16.7 setLedBlinkRate

**Test Command Description:**

This test case sets all LEDs to blink with specified blink rate. The blink rate input is received from the user. Enter the test case number as "7" in the Normal Mode or case number as "7" in the Special Mode in Ubuntu Linux host. The setLedBlinkRate test will be executed and the result will be displayed as shown in Figure 4-129.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
+-----+
|                                     |
|               LED TEST             |
|-----+-----+
| 1 | ledCapLEDs                     | 6 | setLedBlinkColor           |
|-----+-----+
| 2 | ledSetState                     | 7 | setLedBlinkRate             |
|-----+-----+
| 3 | getLedColor                     | 8 | ledSetLuminosity           |
|-----+-----+
| 4 | setLedColor                     | 9 | Run all LED tests           |
|-----+-----+
| 5 | ledSetPattern                   | 0 | Return to main menu         |
|-----+-----+
Please Enter Test to Execute:7
Setting blink rate of all leds to 0.5 Hz

BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
```

```
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
Setting blink rate of all leds to 3 Hz

BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
BIST TEST RESULT: setLedBlinkRate:PASSED
+-----+
```



Figure 4-129: setLedBlinkRate Test Command

## 4.16.8 ledSetLuminosity

### Test Command Description:

This test case sets all LEDs luminosity with different percentage (100, 50, 10). Enter the test case number as "8" in the Normal Mode or case number as "8" in the Special Mode in Ubuntu Linux host. The ledSetLuminosity test will be executed and the result will be displayed as shown in Figure 4-130 and Figure 4-131.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
+-----+
|                                     LED TEST                                     |
+-----+
| 1 | ledCapLEDs                      | 6 | setLedBlinkColor                    |
+-----+
| 2 | ledSetState                     | 7 | setLedBlinkRate                    |
+-----+
| 3 | getLedColor                     | 8 | ledSetLuminosity                   |
+-----+
| 4 | setLedColor                     | 9 | Run all LED tests                  |
+-----+
| 5 | ledSetPattern                   | 0 | Return to main menu                |
+-----+

Please Enter Test to Execute:8
Setting service_led1 100% luminosity

ledSetLuminosity:PASSED
+-----+
Setting service_led1 50% luminosity

ledSetLuminosity:PASSED
+-----+
Setting service_led1 10% luminosity

ledSetLuminosity:PASSED
+-----+
Setting service_led2 100% luminosity

ledSetLuminosity:PASSED
```

Figure 4-130: LED Luminosity tests (1)



```
+-----+
Setting service_led2 50% luminosity
ledSetLuminosity: PASSED
+-----+
Setting service_led2 10% luminosity
ledSetLuminosity: PASSED
+-----+
Setting service_led3 100% luminosity
ledSetLuminosity: PASSED
+-----+
Setting service_led3 50% luminosity
ledSetLuminosity: PASSED
+-----+
Setting service_led3 10% luminosity
ledSetLuminosity: PASSED
+-----+
Setting service_led4 100% luminosity
ledSetLuminosity: PASSED
+-----+
Setting service_led4 50% luminosity
ledSetLuminosity: PASSED
+-----+
```

Figure 4-131: LED Luminosity tests (2)



```
+-----+
Setting service_led4 10% luminosity
ledSetLuminosity: PASSED
+-----+
Setting wps_led1 100% luminosity
ledSetLuminosity: PASSED
+-----+
Setting wps_led1 50% luminosity
ledSetLuminosity: PASSED
+-----+
Setting wps_led1 10% luminosity
ledSetLuminosity: PASSED
+-----+
Setting wps_led2 100% luminosity
ledSetLuminosity: PASSED
+-----+
Setting wps_led2 50% luminosity
ledSetLuminosity: PASSED
+-----+
Setting wps_led2 10% luminosity
ledSetLuminosity: PASSED
+-----+
```

Figure 4-131: LED Luminosity tests (3)

## 4.17 TILT Test Command

### **Test Command Description:**

This test checks the functionality of the TILT sensor in RG. Enter the test case number as "17" in the Normal Mode and "18" in the Special Mode in Ubuntu Linux host.

### **Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**



```
root@ATlab05:/bin# bist_client TiltGetAngles
Testing Tilt to get angles:

Tilt Angles[degrees] : X[1] Y[90] Z[91]

AngleTransitionToVertical:0 degrees
AngleTransitionToHorizontal:0 degrees
BIST TEST RESULT: TiltGetAngles:PASSED
root@ATlab05:/bin#
```

Figure 4-140: Tilt Command Menu

### 4.17.1 TiltGetAngles

**Test Command Description:**

This test case displays the X, Y and Z axis of RG. Enter the test case number as "1" in the Normal Mode and "1" in the Special Mode in Ubuntu Linux host. The test TiltGetAngles will be executed and the result will be displayed as shown in Figure 4-141.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
|                               |
|                               |
|                               |
| 1 | TiltGetAngles              | 3 | Run all Tilt tests          |
| 2 | TiltGetOrientation          | 0 | Return to main menu        |
|                               |
+-----+
Please Enter Test to Execute:1
Testing Tilt to get angles:

Tilt Angles[degrees] : X[1] Y[91] Z[91]

AngleTransitionToVertical:0 degrees
AngleTransitionToHorizontal:255 degrees
BIST TEST RESULT: TiltGetAngles:PASSED
```

Figure 4-141: TiltGetAngles

### 4.17.2 TiltGetOrientation

**Test Command Description:**

This test case displays the RG orientation. Enter the test case number as "2" in the Normal Mode and "2" in the Special Mode in Ubuntu Linux host. The TiltGetOrientation test will be executed and the result will be displayed as shown in Figure 4-142.

**Test Pre-requisites:** NA



**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
+-----+
|                                TILT SENSOR TEST                                |
+-----+
| 1 | TiltGetAngles                | 3 | Run all Tilt tests                |
+-----+
| 2 | TiltGetOrientation            | 0 | Return to main menu            |
+-----+
Please Enter Test to Execute:2
Testing Tilt to get orientation:

Orientation:Vertical UP
BIST TEST RESULT: TiltGetOrientation:PASSED
```

Figure 4-142: TiltGetOrientation

### 4.17.3 Run all TILT tests

**Test Command Description:**

This test is used to run all TILT test cases. Enter subtest case number as "3" in the Normal Mode and "3" in the Special Mode in Ubuntu Linux Host. All TILT tests will be run, and the result will be displayed as shown in Figure 4-143.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
Please Enter Test to Execute:3
+-----+
|                               TILT SENSOR TEST                               |
+-----+
Testing Tilt to get angles:

Tilt Angles[degrees] : X[106] Y[12] Z[103]

AngleTransitionToVertical:0 degrees
AngleTransitionToHorizontal:78 degrees
BIST TEST RESULT: TiltGetAngles:PASSED
+-----+
Testing Tilt to get orientation:

Orientation:Vertical UP
BIST TEST RESULT: TiltGetOrientation:PASSED
+-----+
=====
                        BIST TEST REPORT
=====
TiltGetAngles                               : PASSED
TiltGetOrientation                           : PASSED
+-----+
|                DISPLAYING SUMMARY OF EXECUTION                |
+-----+
Total Number of Test cases executed :2
Test cases passed                    :2
Test cases InProgress                 :0
Test cases failed                     :0
Not supported test cases              :0

See complete summary in /tmp/bist/summary.txt
+-----+
```

Figure 4-143: Run all Tilt test commands

## 4.18 CELLULAR TEST Command

**Test Command Description:** This test is used to check the functionalities of Cellular test commands. Enter Cellular test case number as "18" in the Ubuntu Linux Host. and it will display sub menu for Cellular tests as in Figure 4-144

**Test Pre-requisites:** NA

**Test Screenshot:**



```
+-----+
+   AT&T BIST SOFTWARE - Broadband Gateway   +
+-----+
| MODEL NAME           | CGW450_400_SGD |
| BIST MODE            | SPECIAL_MODE    |
| Software             | TURQUOISE       |
| Software Version     | 4.16            |
| BIST SW VERSION      | 10.0c2_RG      |
| BIST CLIENT VERSION  | 1.0             |
| HW BOARD ID          | 0x20            |
| Serial Number        | X94EA2CY000132  |
| HW Version           | 1.2(BCRM6813)   |
| MAC ADDRESS          | 38:B8:00:10:E4:44 |
| WIFI SSID            | ATT64rqCS2      |
| WIFI PASSWORD        | gb5a6k2hk#nn    |
| DEVICE ACCESS CODE   | 40%5546170     |
+-----+
|                               CGW450 SPECIAL BIST MAIN MENU                               |
+-----+
| 1 | Box Info Test           | 12 | Runner Test           |
+-----+
| 2 | Control Test           | 13 | USB Test                |
+-----+
| 3 | Ethernet Test          | 14 | PON Test                |
+-----+
| 4 | FLASH Test             | 15 | Client Test             |
+-----+
| 5 | LogCopy Test           | 16 | LED Test                |
+-----+
| 6 | SDRAM Test             | 17 | PCM Test                |
+-----+
| 7 | Network Test           | 18 | TILT SENSOR test        |
+-----+
| 8 | Temperature Test       | 19 | Cellular Test           |
+-----+
| 9 | WiFi Test              | 20 | Run All Test            |
+-----+
| 10 | SFP Test               | 21 | Display summary         |
+-----+
| 11 | RedButtonReset Test    | 22 | LED MATRIX TEST         |
+-----+
|   |                       | 0  | EXIT                    |
+-----+
Please Enter Test to Execute: |
```

Figure 4-144: cellular commands

### 4.18.1 CellularDeviceInfo

#### Test Command Description:

This test command is used to get the Cellular device Info information such as Model, Software version, serial number and device status. Enter the subtest case number as "1" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-145

Test Pre-requisites: NA

Test Mode: Normal Mode

Test Screenshot:



```
+-----+
|                                     |
|                   CELLULAR TEST   |
|-----+-----+
| 1 | cellularDeviceInfo             | 5 | cellularGetThermalStatus |
|-----+-----+
| 2 | cellularSecMode                | 6 | cellularGetCpuUsage      |
|-----+-----+
| 3 | cellularGetQCNVersion           | 7 | cellularGetMemoryUsage  |
|-----+-----+
| 4 | cellularChkCalData              | 8 | cellularGetBootStatus   |
|-----+-----+
| 0 | Return to main menu            | 9 | Run all Test           |
|-----+-----+
Please Enter Test to Execute:1

CELLULAR DEVICE INFO:
*****
MODEL: IMQC
SW VER: 10.00511.017.1
SERIAL NUMBER:IMQCW2142000138
DEVICE STATUS:ONLINE

BIST TEST RESULT: cellularDeviceInfo:PASSED
```

Figure 4-145: cellularDeviceInfo

## 4.18.2 cellularSecMode

### Test Command Description:

. Enter the subtest case number as "2" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-146

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**



```
+-----+
|               CELLULAR TEST               |
+-----+
| 1 | cellularDeviceInfo | 5 | cellularGetThermalStatus |
+-----+
| 2 | cellularSecMode    | 6 | cellularGetCpuUsage    |
+-----+
| 3 | cellularGetQCVersion | 7 | cellularGetMemoryUsage |
+-----+
| 4 | cellularChkCalData  | 8 | cellularGetBootStatus  |
+-----+
| 0 | Return to main menu | 9 | Run all Test         |
+-----+
Please Enter Test to Execute:2

Securemode:0:UNSECURE MODE

BIST TEST RESULT: cellularSecMode:PASSED
```

Figure 4-146: cellularSecMode

### 4.18.3 cellularSetUsbState

**Test Command Description:**

This command is used to ON or OFF USB state.

Enter the subtest case number as "3" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-148

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
BIST TEST RESULT: cellularSecMode: PASSED
+-----+
|               CELLULAR TEST               |
+-----+
| 1 | cellularDeviceInfo | 10 | cellularReboot |
+-----+
| 2 | cellularSecMode   | 11 | cellularGetOpMode |
+-----+
| 3 | cellularSetUsbState | 12 | cellularGetSIMStatus |
+-----+
| 4 | cellularGetQCNVersion | 13 | cellularGetDeviceLog |
+-----+
| 5 | cellularChkCalData  | 14 | cellularDeleteMSISDNMBDN |
+-----+
| 6 | cellularGetThermalStatus | 15 | cellularResetFactory |
+-----+
| 7 | cellularGetCpuUsage  | 16 | cellularSIMTestMode |
+-----+
| 8 | cellularGetMemoryUsage | 17 | cellularReseteSIMProfile |
+-----+
| 9 | cellularGetBootStatus | 18 | cellularFlashUpdate |
+-----+
| 0 | Return to main menu   | 19 | Run all Test |
+-----+
Please Enter Test to Execute:3
Enter the state (1 - Enable & 0 - Disable) : 1

Cellular USB ENABLE

BIST TEST RESULT: cellularSetUsbState: PASSED
```

Figure 4-147: cellularSetUsbState

#### 4.18.4 cellularGetQCNVersion

**Test Command Description:**

Enter the subtest case number as "4" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-148

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**



```
+-----+
|                                     |
|                   CELLULAR TEST   |
|-----+-----+
| 1 | cellularDeviceInfo             | 5 | cellularGetThermalStatus |
|-----+-----+
| 2 | cellularSecMode               | 6 | cellularGetCpuUsage      |
|-----+-----+
| 3 | cellularGetQCNVersion         | 7 | cellularGetMemoryUsage  |
|-----+-----+
| 4 | cellularChkCalData            | 8 | cellularGetBootStatus   |
|-----+-----+
| 0 | Return to main menu           | 9 | Run all Test           |
|-----+-----+
Please Enter Test to Execute:3
:Qcnversion:IMQC_lab2_v10.08.21481
BIST TEST RESULT: cellularGetQCNVersion:PASSED
```

Figure 4-148: cellularGetQCNVersion

#### 4.18.5 cellularChkCalData

**Test Command Description:**

calibration Enter the subtest case number as "5" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-149

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
+-----+
|                                     |
|                   CELLULAR TEST   |
|-----+-----+
| 1 | cellularDeviceInfo             | 5 | cellularGetThermalStatus |
|-----+-----+
| 2 | cellularSecMode               | 6 | cellularGetCpuUsage      |
|-----+-----+
| 3 | cellularGetQCNVersion         | 7 | cellularGetMemoryUsage  |
|-----+-----+
| 4 | cellularChkCalData            | 8 | cellularGetBootStatus   |
|-----+-----+
| 0 | Return to main menu           | 9 | Run all Test           |
|-----+-----+
Please Enter Test to Execute:4
CALIBRATION DATA NOT PRESENT
BIST TEST RESULT: cellularChkCalData:PASSED
```



Figure 4-149: cellularChkCalData

#### 4.18.6 cellularGetThermalStatus

**Test Command Description:**

Enter the subtest case number as "6" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-150

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
+-----+
|               CELLULAR TEST               |
+-----+
| 1 | cellularDeviceInfo | 5 | cellularGetThermalStatus |
+-----+
| 2 | cellularSecMode   | 6 | cellularGetCpuUsage   |
+-----+
| 3 | cellularGetQCNVersion | 7 | cellularGetMemoryUsage |
+-----+
| 4 | cellularChkCalData | 8 | cellularGetBootStatus |
+-----+
| 0 | Return to main menu | 9 | Run all Test         |
+-----+
Please Enter Test to Execute:5
Get the thermal Status...

CPU      : 38
PA1      : 39
PA2      : 38
MODEM    : 39

BIST TEST RESULT: cellularGetThermalStatus: PASSED
```

Figure 4-150: cellularGetThermalStatus

#### 4.18.7 cellularGetCpuUsage

**Test Command Description:**

peak, avg Enter the subtest case number as "8" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-152

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**



```
+-----+
|                                     |
|                   CELLULAR TEST   |
|-----+-----+
| 1 | cellularDeviceInfo             | 5 | cellularGetThermalStatus |
|-----+-----+
| 2 | cellularSecMode                | 6 | cellularGetCpuUsage       |
|-----+-----+
| 3 | cellularGetQCNVersion          | 7 | cellularGetMemoryUsage  |
|-----+-----+
| 4 | cellularChkCalData             | 8 | cellularGetBootStatus   |
|-----+-----+
| 0 | Return to main menu            | 9 | Run all Test           |
|-----+-----+
Please Enter Test to Execute:6
CPU USAGE:
*****
Sys  Usage: 10%
Idle Usage: 90%
Peak Usage: 11%
Avg  Usage: 7%
Avg  Load : 7%

BIST TEST RESULT: cellularGetCpuUsage: PASSED
+-----+
```

Figure 4-152: cellularGetCpuUsage

## 4.18.8 cellularGetMemoryUsage

### **Test Command Description:**

This command is used to get the memory usage in the modem. It displays total, free and cache size. Enter the subtest case number as "8" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-153

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**



```
+-----+
|               CELLULAR TEST               |
+-----+
| 1 | cellularDeviceInfo | 5 | cellularGetThermalStatus |
+-----+
| 2 | cellularSecMode   | 6 | cellularGetCpuUsage   |
+-----+
| 3 | cellularGetQCNVersion | 7 | cellularGetMemoryUsage |
+-----+
| 4 | cellularChkCalData  | 8 | cellularGetBootStatus  |
+-----+
| 0 | Return to main menu | 9 | Run all Test         |
+-----+
Please Enter Test to Execute:7
MEMORY USAGE
*****
Total Memory: 690792 KB
Free Memory: 395508 KB
Cache Memory: 158748 KB

BIST TEST RESULT: cellularGetMemoryUsage: PASSED
```

Figure 4-153: cellularGetMemoryUsage

#### 4.18.9 cellularGetBootStatus

**Test Command Description:**

. Enter the subtest case number as "10" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-154

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
+-----+
|               CELLULAR TEST               |
+-----+
| 1 | cellularDeviceInfo | 5 | cellularGetThermalStatus |
+-----+
| 2 | cellularSecMode   | 6 | cellularGetCpuUsage   |
+-----+
| 3 | cellularGetQCNVersion | 7 | cellularGetMemoryUsage |
+-----+
| 4 | cellularChkCalData  | 8 | cellularGetBootStatus  |
+-----+
| 0 | Return to main menu | 9 | Run all Test         |
+-----+
Please Enter Test to Execute:8

BOOT STATUS: ONLINE

BIST TEST RESULT: cellularGetBootStatus: PASSED
```



Figure 4-154: cellularGetBootStatus

#### 4.18.10 cellularReboot

**Test Command Description:**

update. Enter the subtest case number as "10" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-154.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
|
+----- CELLULAR TEST -----+
| 1 | cellularDeviceInfo          | 10 | cellularReboot          |
+-----+-----+-----+-----+
| 2 | cellularSecMode             | 11 | cellularGetOpMode        |
+-----+-----+-----+-----+
| 3 | cellularSetUsbState          | 12 | cellularGetSIMStatus     |
+-----+-----+-----+-----+
| 4 | cellularGetQCNVersion         | 13 | cellularGetDeviceLog     |
+-----+-----+-----+-----+
| 5 | cellularChkCalData            | 14 | cellularDeleteMSISDNMBDN |
+-----+-----+-----+-----+
| 6 | cellularGetThermalStatus       | 15 | cellularResetFactory     |
+-----+-----+-----+-----+
| 7 | cellularGetCpuUsage            | 16 | cellularSIMTestMode      |
+-----+-----+-----+-----+
| 8 | cellularGetMemoryUsage         | 17 | cellularReseteSIMProfile |
+-----+-----+-----+-----+
| 9 | cellularGetBootStatus          | 18 | cellularFlashUpdate      |
+-----+-----+-----+-----+
| 0 | Return to main menu           | 19 | Run all Test             |
+-----+-----+-----+-----+

Please Enter Test to Execute:10
Enter in how many seconds you want to reboot : 1

Reboot after 1 seconds...

BIST TEST RESULT: cellularReboot:PASSED
```

Figure 4-155: cellularReboot

#### 4.18.11 cellularGetOpMode

**Test Command Description:**

get the Operating Mode. Enter the subtest case number as "11" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-156.



**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
BIST TEST RESULT: cellularGetBootStatus: PASSED
+-----+
|               CELLULAR TEST               |
+-----+
| 1 | cellularDeviceInfo          | 10 | cellularReboot          |
+-----+
| 2 | cellularSecMode            | 11 | cellularGetOpMode        |
+-----+
| 3 | cellularSetUsbState        | 12 | cellularGetSIMStatus     |
+-----+
| 4 | cellularGetQCNVersion      | 13 | cellularGetDeviceLog     |
+-----+
| 5 | cellularChkCalData         | 14 | cellularDeleteMSISDNMBDN |
+-----+
| 6 | cellularGetThermalStatus    | 15 | cellularResetFactory     |
+-----+
| 7 | cellularGetCpuUsage        | 16 | cellularSIMTestMode      |
+-----+
| 8 | cellularGetMemoryUsage     | 17 | cellularReseteSIMProfile |
+-----+
| 9 | cellularGetBootStatus      | 18 | cellularFlashUpdate      |
+-----+
| 0 | Return to main menu        | 19 | Run all Test             |
+-----+
Please Enter Test to Execute:11
Get OpMode Modem is Online mode
BIST TEST RESULT: cellularGetOpMode: PASSED
```

Figure 4-156: cellularGetOpMode

#### 4.18.12 cellularGetSIMStatus

**Test Command Description:**

This command is used to get the SIM status.

Enter the subtest case number as "12" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-157.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                     |
|                   CELLULAR TEST   |
|-----+-----+
| 1 | cellularDeviceInfo             | 10 | cellularReboot             |
|-----+-----+
| 2 | cellularSecMode               | 11 | cellularGetOpMode           |
|-----+-----+
| 3 | cellularSetUsbState           | 12 | cellularGetSIMStatus        |
|-----+-----+
| 4 | cellularGetQCNVersion         | 13 | cellularGetDeviceLog        |
|-----+-----+
| 5 | cellularChkCalData            | 14 | cellularDeleteMSISDNMBDN    |
|-----+-----+
| 6 | cellularGetThermalStatus       | 15 | cellularResetFactory        |
|-----+-----+
| 7 | cellularGetCpuUsage           | 16 | cellularSIMTestMode         |
|-----+-----+
| 8 | cellularGetMemoryUsage        | 17 | cellularReseteSIMProfile    |
|-----+-----+
| 9 | cellularGetBootStatus         | 18 | cellularFlashUpdate         |
|-----+-----+
| 0 | Return to main menu           | 19 | Run all Test                |
|-----+-----+
Please Enter Test to Execute:12

SIM Status 0
eSIM is Present

BIST TEST RESULT: cellularGetSIMStatus:PASSED
```

Figure 4-157: cellularGetSIMStatus

### 4.18.13 cellularGetDeviceLog

**Test Command Description:**

get device logs. Enter the subtest case number as "13" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-158.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                     CELLULAR TEST                                     |
+-----+
| 1 | cellularDeviceInfo | 10 | cellularReboot |
+-----+
| 2 | cellularSecMode   | 11 | cellularGetOpMode |
+-----+
| 3 | cellularSetUsbState | 12 | cellularGetSIMStatus |
+-----+
| 4 | cellularGetQCNVersion | 13 | cellularGetDeviceLog |
+-----+
| 5 | cellularChkCalData  | 14 | cellularDeleteMSISDNMBDN |
+-----+
| 6 | cellularGetThermalStatus | 15 | cellularResetFactory |
+-----+
| 7 | cellularGetCpuUsage  | 16 | cellularSIMTestMode |
+-----+
| 8 | cellularGetMemoryUsage | 17 | cellularReseteSIMProfile |
+-----+
| 9 | cellularGetBootStatus | 18 | cellularFlashUpdate |
+-----+
| 0 | Return to main menu  | 19 | Run all Test |
+-----+
Please Enter Test to Execute:13
device logs:nc 203.0.113.2 58440 > /tmp/log.tar.gz
BIST TEST RESULT: cellularGetDeviceLog:PASSED
```

Figure 4-158: cellularGetDeviceLog

#### 4.18.14 cellularGetMSISDNMBDN

**Test Command Description:**

get the MSISDN & MBDN. Enter the subtest case number as "14" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-159.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                     CELLULAR TEST                                     |
+-----+
| 1 | cellularDeviceInfo               | 11 | cellularReboot                |
+-----+
| 2 | cellularSecMode                 | 12 | cellularGetOpMode             |
+-----+
| 3 | cellularSetUsbState              | 13 | cellularGetSIMStatus          |
+-----+
| 4 | cellularGetQCNVersion            | 14 | cellularGetDeviceLog          |
+-----+
| 5 | cellularChkCalData               | 15 | cellularGetMSISDNMBDN         |
+-----+
| 6 | cellularGetThermalStatus         | 16 | cellularResetFactory          |
+-----+
| 7 | cellularGetCpuUsage              | 17 | cellularSIMTestMode           |
+-----+
| 8 | cellularGetMemoryUsage           | 18 | cellularReseteSIMProfile      |
+-----+
| 9 | cellularGetBootStatus            | 19 | cellularFlashUpdate           |
+-----+
| 10 | cellularGetICCID                | 20 | Run all Test                  |
+-----+
| 0 | Return to main menu              |
+-----+

Please Enter Test to Execute:15

voice_number = 2
mobile_id_number_valid = 0
mobile_id_number = 
imsi_valid = 247
imsi = 

BIST TEST RESULT: cellularDeleteMSISDNMBDN: PASSED
+-----+
```

Figure 4-159: cellularGetMSISDNMBDN

#### 4.18.15 cellularResetFactory

**Test Command Description:**

do factory reset of 5g module. Enter the subtest case number as "15" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-160.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



#### 4.18.16 cellularSIMTestMode

enable or disable the eSIM Test MODE.

Enable Test mode - Test profile profile will be used.. Enter the subtest case number as "16" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-161.

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                     |
|                   CELLULAR TEST   |
|-----+-----+
| 1 | cellularDeviceInfo | 10 | cellularReboot |
|-----+-----+
| 2 | cellularSecMode   | 11 | cellularGetOpMode |
|-----+-----+
| 3 | cellularSetUsbState | 12 | cellularGetSIMStatus |
|-----+-----+
| 4 | cellularGetQCVersion | 13 | cellularGetDeviceLog |
|-----+-----+
| 5 | cellularChkCalData  | 14 | cellularDeleteMSISDNMBDN |
|-----+-----+
| 6 | cellularGetThermalStatus | 15 | cellularResetFactory |
|-----+-----+
| 7 | cellularGetCpuUsage  | 16 | cellularSIMTestMode |
|-----+-----+
| 8 | cellularGetMemoryUsage | 17 | cellularReseteSIMProfile |
|-----+-----+
| 9 | cellularGetBootStatus | 18 | cellularFlashUpdate |
|-----+-----+
| 0 | Return to main menu  | 19 | Run all Test |
|-----+-----+
Please Enter Test to Execute:16
Enter the state (1 - Enable & 0 - Disable) : 1

Sim Test Mode ENABLE

SIM Test Mode is  ENABLE

BIST TEST RESULT: cellularSIMTestMode: PASSED
+-----+
|
```

Figure 4-161: cellularSIMTestMode

## 4.18.17 cellularResetSIMProfile

### Test Command Description:

reset the eUICC. Removes the operational profile (not a provisioning/test profiles). Enter the subtest case number as "17" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-162.

### Test Pre-requisites: NA

### Test Mode: Special Mode

### Test Screenshot:



|                                                    |                          |    |                          |
|----------------------------------------------------|--------------------------|----|--------------------------|
| CELLULAR TEST                                      |                          |    |                          |
| 1                                                  | cellularDeviceInfo       | 10 | cellularReboot           |
| 2                                                  | cellularSecMode          | 11 | cellularGetOpMode        |
| 3                                                  | cellularSetUsbState      | 12 | cellularGetSIMStatus     |
| 4                                                  | cellularGetQCNVersion    | 13 | cellularGetDeviceLog     |
| 5                                                  | cellularChkCalData       | 14 | cellularDeleteMSISDNMBDN |
| 6                                                  | cellularGetThermalStatus | 15 | cellularResetFactory     |
| 7                                                  | cellularGetCpuUsage      | 16 | cellularSIMTestMode      |
| 8                                                  | cellularGetMemoryUsage   | 17 | cellularReseteSIMProfile |
| 9                                                  | cellularGetBootStatus    | 18 | cellularFlashUpdate      |
| 0                                                  | Return to main menu      | 19 | Run all Test             |
| Please Enter Test to Execute:17                    |                          |    |                          |
| BIST TEST RESULT: cellularReseteSIMProfile: PASSED |                          |    |                          |

Figure 4-162: cellularResetSIMProfile

### 4.18.18 cellularFlashUpdate

**Test Command Description:**

update. Enter the subtest case number as "18" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-163

**Test Pre-requisites:** NA**Test Mode:** Special Mode**Test Screenshot:**



```
#####
CAUTION : This test case will around approx 4 to 5 mins
After this test case you are not able of run other cellular test cases
#####

Do you want to continue this test?[yes - continue, no - quit]:
yes
Enter the FW path      : /data/5g/download/5g_image_active.zip,
Enter the Signature Path : /data/5g/download/5g_image_active_sign
Firmware Updating...

Waiting to switch to recovery mode
Upgrade Initiated Successfully
Waiting for the upgrade status to be completed...
.....
Cellular FW upgrade is completed with status:3, progress:100%
NOTE: Reboot the RG to reflect the new 5G FW version

BIST TEST RESULT: cellularFlashUpdate:PASSED
+-----+
```

Figure 4-163: cellularFlashUpdate

#### 4.18.19 cellularGetICCID

**Test Command Description:**

update. Enter the subtest case number as "10" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-164

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

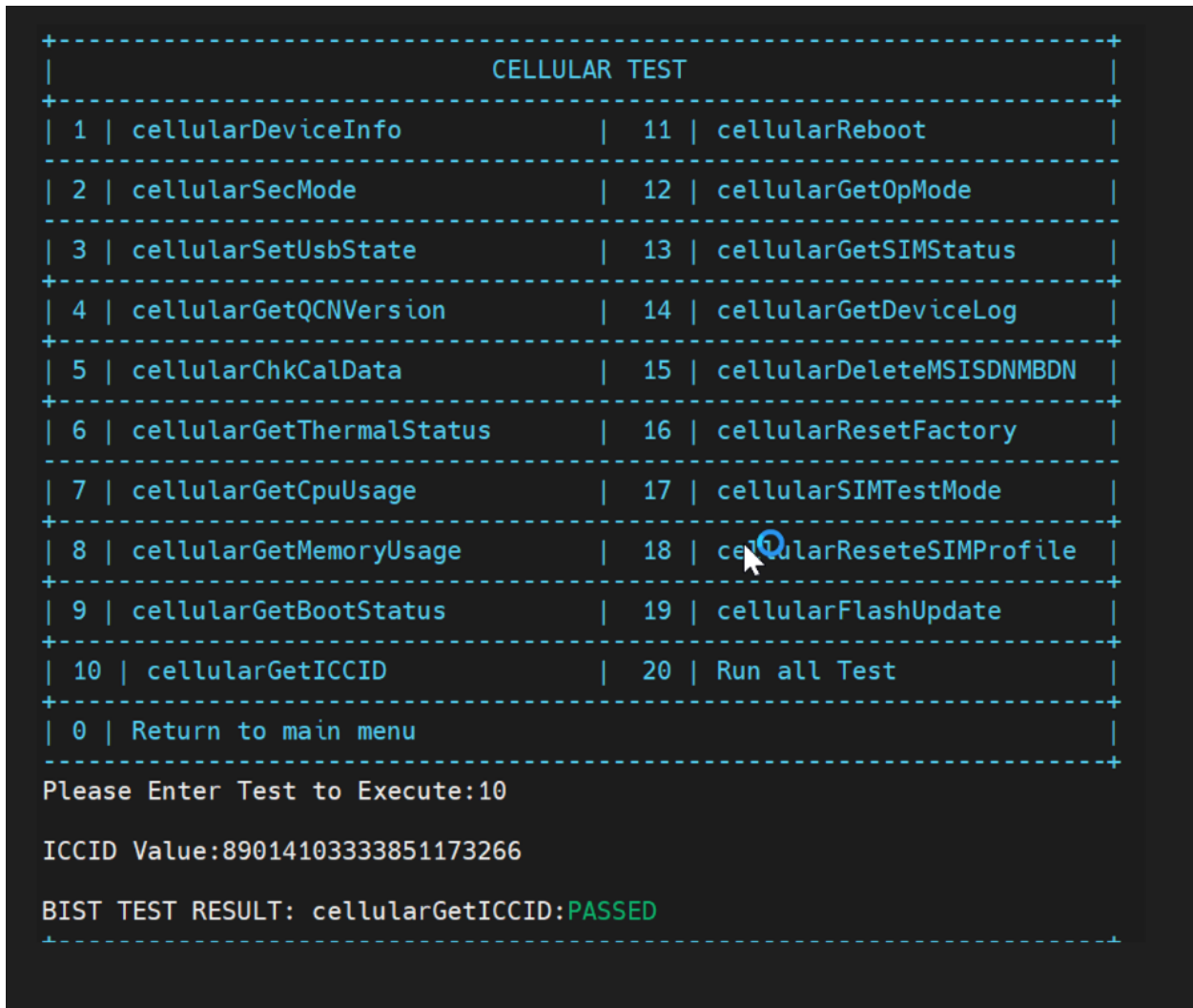


Figure 4-164: cellularGetICCID

#### 4.18.20 cellularStartCollectQXDMLog

**Test Command Description:**

start collecting qxdm logs. Enter the subtest case number as "12" in Normal Mode. The cellularStartCollectQXDMLog test will be executed, and the result will be displayed as shown in Figure 4-165

**Test Pre-requisites:** USB disk should be Formatted in NTFS format

**Test Mode:** Normal Mode

**Test Screenshot:**



```
| 5 | cellularGetThermalStatus | 11 | cellularGetDeviceLog |
+-----+
| 6 | cellularGetCpuUsage | 12 | cellularStartCollectQXDMLog |
+-----+
| 0 | Return to main menu | 13 | cellularStopCollectQXDMLog |
+-----+
| | | 14 | Run all Test |
+-----+
Please Enter Test to Execute:12
Please make sure USB storage with NTFS format is mounted
Enter the size[0|1|2] : 0
Enter the path to store the logs : /share
Do you want to capture logs with log_mask (Y/N): N
DPI_CELLULAR_CMD_StartCollectQxdmLog
size: 0 storepath: /share

HAL_CELLULAR_StartcollectQXDMLog size: 0, store_path: /share, mask_path: (null)<eom>
Only one USB mass storage device detected

FS test for NTFS passed for the device /dev/sda1
usb storage is present. Count: 1
Starting RPC Bind
Starting NFSD
Starting QXDM Logs

BIST TEST RESULT: cellularStartCollectQXDMLog: PASSED
```

Figure 4-165: cellularGetICCID

#### 4.18.21 cellularStopCollectQXDMLog

**Test Command Description:**

stop collecting qxdm logs. Enter the subtest case number as "13" in Normal Mode. The cellularStopCollectQXDMLog test will be executed, and the result will be displayed as shown in Figure 4-166

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**



```
+-----+
| 6 | cellularGetCpuUsage      | 12 | cellularStartCollectQXDMLog|
+-----+
| 0 | Return to main menu      | 13 | cellularStopCollectQXDMLog |
+-----+
|   |                          | 14 | Run all Test                |
+-----+
Please Enter Test to Execute:13
DPI_CELLULAR_CMD_StopCollectQxdmLog

HAL_CELLULAR_StopcollectQXDMLog
Stopping QXDM Logs
Stopping NFSD
Stopping RPC Bind
rpcbind stop ret:15

BIST TEST RESULT: cellularStopCollectQXDMLog: PASSED
+-----+
```

Figure 4-166: cellularGetICCID

## 4.19 LED MATRIX TEST Command

**Test Command Description:** This test is used to check the functionalities of Led Matrix. Enter test case number as "22" in the Ubuntu Linux Host. and it will display sub menu for Led Matrix tests as in Figure 4-144

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
Please Enter Test to Execute:22
+-----+
|                          LED MATRIX TEST                          |
+-----+
| 1 | ledMatrix              | 2 | ledMatrixSetAllLed        |
+-----+
| 0 | Return to Main Menu    |                               |
+-----+
Please Enter Test to Execute:█
```

### 4.19.1 LEDMatrix

**Test Command Description:** control LED Matrix using row & column value, again getting status of led matrix (ON/OFF). Enter the subtest case number as "22" in Special Mode. The LED Matrix Info test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA



**Test Mode:** Special Mode

**Test Screenshot:**





```
+-----+
|                                     CGW450 SPECIAL BIST MAIN MENU                                     |
+-----+
| 1 | Box Info Test                   | 12 | Runner Test                   |
+-----+
| 2 | Control Test                   | 13 | USB Test                       |
+-----+
| 3 | Ethernet Test                  | 14 | PON Test                       |
+-----+
| 4 | FLASH Test                    | 15 | Client Test                    |
+-----+
| 5 | LogCopy Test                  | 16 | LED Test                       |
+-----+
| 6 | SDRAM Test                    | 17 | PCM Test                       |
+-----+
| 7 | Network Test                  | 18 | TILT SENSOR test               |
+-----+
| 8 | Temperature Test              | 19 | Cellular Test                  |
+-----+
| 9 | WiFi Test                     | 20 | Run All Test                   |
+-----+
| 10 | SFP Test                     | 21 | Display summary                |
+-----+
| 11 | RedButtonReset Test          | 22 | LED MATRIX TEST                |
+-----+
|   |                               | 0  | EXIT                            |
+-----+
Please Enter Test to Execute:22
+-----+
|                                     LED MATRIX TEST                                     |
+-----+
Enter Row: 2
Enter Column: 3
Enter Status of LED(ON/OFF): ON

LED Matrix row: 2      col: 3      Status of LED: ON
Row : 2 Column : 3 Status: ON

BIST TEST RESULT : 2 3 ON ledMatrix: PASSED
+-----+
```

Figure 4-164: ledMatrix

## 4.19.2 LEDMATRIXSETALLED

### Test Command Description:

make all the Leds in the LED Matrix ON or OFF. Enter the subtest case number as "2" in Special Mode. The LED Matrix Set all led test will be executed, and the result will be displayed as shown in Figure-4-164.

Test Pre-requisites: NA

Test Mode: Special Mode

### Test Screenshot:



```
|
|                                LED MATRIX TEST                                |
+-----+
| 1 | ledMatrix                  | 2 | ledMatrixSetAllLed                  |
+-----+
| 0 | Return to Main Menu        |
+-----+
Please Enter Test to Execute:2
Enter Status of LED(ON/OFF): ON

LED Matrix Set All Led: ON
Set All Leds : ON

BIST TEST RESULT :ledMatrixSetAllLed:PASSED
```

```
+-----+
|                                LED MATRIX TEST                                |
+-----+
| 1 | ledMatrix                  | 2 | ledMatrixSetAllLed                  |
+-----+
| 0 | Return to Main Menu        |
+-----+
Please Enter Test to Execute:2
Enter Status of LED(ON/OFF): OFF

LED Matrix Set All Led: OFF
Set All Leds : OFF

BIST TEST RESULT :ledMatrixSetAllLed:PASSED
```





## 4.20 FAN TEST Command

**Test Command Description:** This test is used to check the functionalities of Fan Test. Enter Fan test case number as "19" in the Normal mode of Ubuntu Linux Host. and it will display sub menu for Fan Test as in Figure 4-14

**Test Pre-requisites:** NA

**Test Screenshot:**

```
Please Enter Test to Execute:19
+-----+
|                                     FAN TEST                                     |
+-----+
| 1 | fanGetStatus                    | 5 | fanSetSpeed                    |
+-----+
| 2 | fanSetState                      | 6 | fanGetPWM                      |
+-----+
| 3 | fanGetMaxSpeed                  | 7 | setAutomationControl          |
+-----+
| 4 | fanGetSpeed                     | 8 | getAutomationControl          |
+-----+
| 0 | Return to main menu              |
+-----+
Please Enter Test to Execute:█
```

### 4.20.1 FanGetStatus

**Test Command Description:**

get the Fan Status as Disabled(0),Enabled(1),Fan enabled and not functioning(2),fan operating(3),fan state failed(4). Enter the subtest case number as "1" in Normal Mode. The all Fan Get Status test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode



```
+-----+
|                                     FAN  TEST                                     |
+-----+
| 1 | fanGetStatus                    | 5 | fanSetSpeed                    |
+-----+
| 2 | fanSetState                      | 6 | fanGetPWM                      |
+-----+
| 3 | fanGetMaxSpeed                  | 7 | setAutomationControl          |
+-----+
| 4 | fanGetSpeed                     | 8 | getAutomationControl          |
+-----+
| 0 | Return to main menu              |
+-----+
Please Enter Test to Execute:1
Testing Fan get Status
Fan Status = 0

BIST TEST RESULT: fanGetStatus: PASSED
+-----+
```

## 4.20.2 FanSetState

### Test Command Description:

set the Fan Status as Disabled(Off), Enabled(ON). Enter the subtest case number as "2" in Normal Mode. The all Fan Set Status test will be executed, and the result will be displayed as shown in Figure-4-164.

### Test Pre-requisites: NA

### Test Mode: Normal Mode

```
+-----+
|                                     FAN  TEST                                     |
+-----+
| 1 | fanGetStatus                    | 5 | fanSetSpeed                    |
+-----+
| 2 | fanSetState                      | 6 | fanGetPWM                      |
+-----+
| 3 | fanGetMaxSpeed                  | 7 | setAutomationControl          |
+-----+
| 4 | fanGetSpeed                     | 8 | getAutomationControl          |
+-----+
| 0 | Return to main menu              |
+-----+
Please Enter Test to Execute:2
Enter the State [on, off]: on
Testing Fan Set State Test

BIST TEST RESULT: fanSetState: PASSED
+-----+
```



```
+-----+
|                                     FAN  TEST                                     |
+-----+
| 1 | fanGetStatus                    | 5 | fanSetSpeed                    |
+-----+
| 2 | fanSetState                     | 6 | fanGetPWM                      |
+-----+
| 3 | fanGetMaxSpeed                  | 7 | setAutomationControl          |
+-----+
| 4 | fanGetSpeed                    | 8 | getAutomationControl          |
+-----+
| 0 | Return to main menu              |
+-----+
Please Enter Test to Execute:2
Enter the State [on, off]: off
Testing Fan Set State Test

BIST TEST RESULT: fanSetState:PASSED
+-----+
```

### 4.20.3 fanGetMaxSpeed

**Test Command Description:**

Get the fan Max speed. Enter the subtest case number as "3" in Normal Mode. The all Fan Get Max Speed test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

```
+-----+
|                                     FAN  TEST                                     |
+-----+
| 1 | fanGetStatus                    | 5 | fanSetSpeed                    |
+-----+
| 2 | fanSetState                     | 6 | fanGetPWM                      |
+-----+
| 3 | fanGetMaxSpeed                  | 7 | setAutomationControl          |
+-----+
| 4 | fanGetSpeed                    | 8 | getAutomationControl          |
+-----+
| 0 | Return to main menu              |
+-----+
Please Enter Test to Execute:3
Testing Fan Speed Get Test
fanGetMaxSpeed:7000 (in RPM)

BIST TEST RESULT: fanGetMaxSpeed:PASSED
+-----+
```



#### 4.20.4 fanGetSpeed

**Test Command Description:**

Get the fan speed. Enter the subtest case number as "4" in Normal Mode. The all Fan Get Speed test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

```
+-----+
|                                     FAN  TEST                                     |
+-----+
| 1 | fanGetStatus                    | 5 | fanSetSpeed                    |
+-----+
| 2 | fanSetState                     | 6 | fanGetPWM                      |
+-----+
| 3 | fanGetMaxSpeed                  | 7 | setAutomationControl          |
+-----+
| 4 | fanGetSpeed                     | 8 | getAutomationControl          |
+-----+
| 0 | Return to main menu              |
+-----+
Please Enter Test to Execute:4
Testing Fan Speed Get Test
FanGetSpeed:0 ( in RPM)

BIST TEST RESULT: fanGetSpeed:PASSED
+-----+
```

#### 4.20.5 fanSetSpeed

**Test Command Description:**

set the fan speed from 0,1000,4000,5000,6000,7000. Enter the subtest case number as "5" in Normal Mode. The all Fan Set Speed test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode



```
+-----+
|                                     FAN  TEST                                     |
+-----+
| 1 | fanGetStatus                    | 5 | fanSetSpeed                    |
+-----+
| 2 | fanSetState                     | 6 | fanGetPWM                     |
+-----+
| 3 | fanGetMaxSpeed                  | 7 | setAutomationControl          |
+-----+
| 4 | fanGetSpeed                    | 8 | getAutomationControl          |
+-----+
| 0 | Return to main menu              |
+-----+
Please Enter Test to Execute:5
Enter the Speed to Set the Fan [0,1000,4000,5000,6000,7000]: 1000
Testing Fan Speed Set test

BIST TEST RESULT: fanSetSpeed:PASSED
+-----+
```

#### 4.20.6 fanGetPWM

**Test Command Description:**

Get the PWM for different speeds and it will show value from 0 to 126. Enter the subtest case number as "6" in Normal Mode. The all Fan Get PWM test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

```
+-----+
|                                     FAN  TEST                                     |
+-----+
| 1 | fanGetStatus                    | 5 | fanSetSpeed                    |
+-----+
| 2 | fanSetState                     | 6 | fanGetPWM                     |
+-----+
| 3 | fanGetMaxSpeed                  | 7 | setAutomationControl          |
+-----+
| 4 | fanGetSpeed                    | 8 | getAutomationControl          |
+-----+
| 0 | Return to main menu              |
+-----+
Please Enter Test to Execute:6
Testing Fan PWM Get Test
Fan PWM :20

BIST TEST RESULT: fanGetPWM:PASSED
+-----+
```



## 4.20.7 SetAutomaticControl

### Test Command Description:

Set the Automatic Control to disable (0) and Enable (1). Enter the subtest case number as "7" in Normal Mode. The all Fan Set Automatic Control test will be executed, and the result will be displayed as shown in Figure-4-164.

Test Pre-requisites: NA

Test Mode: Normal Mode

```
+-----+
|                                     FAN  TEST                                     |
+-----+-----+-----+-----+-----+-----+
| 1 | fanGetStatus | 5 | fanSetSpeed |
+-----+-----+-----+-----+-----+-----+
| 2 | fanSetState  | 6 | fanGetPWM  |
+-----+-----+-----+-----+-----+-----+
| 3 | fanGetMaxSpeed | 7 | setAutomationControl |
+-----+-----+-----+-----+-----+-----+
| 4 | fanGetSpeed   | 8 | getAutomationControl |
+-----+-----+-----+-----+-----+-----+
| 0 | Return to main menu |
+-----+-----+-----+-----+-----+-----+
Please Enter Test to Execute:7
Enter the state for auto Fan Control [0 :disable ,1:enable]:0
Testing Fan Set Automatic control enable = 0

Set Automatic Control successfully Exececuted
BIST TEST RESULT: fanSetAutoControl:PASSED
```

## 4.20.8 GetAutomaticControl

### Test Command Description:

Get the Automatic Control as disable (0) or Enabled (1). Enter the subtest case number as "8" in Normal Mode. The all Fan Set Automatic Control test will be executed, and the result will be displayed as shown in Figure-4-164.

Test Pre-requisites: NA

Test Mode: Normal Mode

```
+-----+
|                                     FAN  TEST                                     |
+-----+-----+-----+-----+-----+-----+
| 1 | fanGetStatus | 5 | fanSetSpeed |
+-----+-----+-----+-----+-----+-----+
| 2 | fanSetState  | 6 | fanGetPWM  |
+-----+-----+-----+-----+-----+-----+
| 3 | fanGetMaxSpeed | 7 | setAutomationControl |
+-----+-----+-----+-----+-----+-----+
| 4 | fanGetSpeed   | 8 | getAutomationControl |
+-----+-----+-----+-----+-----+-----+
| 0 | Return to main menu |
+-----+-----+-----+-----+-----+-----+
Please Enter Test to Execute:8
Fan Get Automatic control enablefanGetAutoControl:1
BIST TEST RESULT: fanGetAutoControl:PASSED
```

# Chapter

# 5

## 5. BIST CLI based Test Commands

This section explains how to execute the BIST test cases using the BIST client application CLI. The BIST client application CLI command help is as follows:

```
labuser@ATlab05:/bin$ ./bist_client help
-----
boxCapAVS                Returns whether the box supports AVS
boxGetCPUUsage           Returns CPU usage since the last check
boxGetAVSVoltage         Returns the AVS voltage
bistGetVersion           Gets BIST Version
getModel                 Gets Hw Model
boxReboot                Reboots the box
-----
ClientGetSecMode         Retrieves SoC Secure Mode
ClientGetSecImageInfo    Retrieves information on whether the flashed images are secure or not
ClientGetJtagPwdLockStatus Retrieves JTAG password lock status
ClientGetOtpCustLockStatus Retrieves Customer OTP lock status of SOC OTP area
ClientGetImageInfo       Retrieves information from the software images in flash
ClientSetBootFlag        Set the Boot Flag to previous image ensure it is changed and resets back to current
RunShellCommand          Run Shell Commands
BistExit                 Stops BIST in target device
GetBistMode              Get BIST mode
-----
controlCapBuild           Returns the type of SW build and where it is running from
controlSetRS232Speed      Changes the speed of the RS232 communications
controlRunScript          Runs a shell script
-----
ethernetCapPresent       Indicates whether the ethernet port is available
ethernetLoopback         Runs the Ethernet loopback test
-----
flashCapEMMC             Returns whether there is a eMMC flash
flashGetBlockData        Returns the block details of the flash chip
flashBlockTest           Executes the flash block test
flashUpdate              Updates the flash with a binary file
-----
ledCapLEDs              Returns the LEDs supported
ledSetState              Changes the led state
ledSetLuminosity         Changes the led luminosity
ledSetOn                 Test led state functionality
ledSetOff                Test led state functionality
getLedColor              To get the LED color
setLedColor              Validate led color setting
```

Figure 5-1: BIST CLI Help (1)



|                          |                                                               |
|--------------------------|---------------------------------------------------------------|
| logCopy                  | Captures BIST logs                                            |
| networkCapPresent        | Returns whether the network commands are supported            |
| networkSetIP             | Sets the IP of a network interface                            |
| networkGetIP             | Returns the IP from the Given interface                       |
| networkGetDHCPsServerIP  | Returns the IP of the DHCP server                             |
| networkGetInterfaceFlags | Returns the flags for the BIST network interface              |
| networkGetMAC            | Returns the MAC address of a network interface                |
| networkGetPortName       | Returns the interface name for the given network port         |
| networkGetIperfStatus    | Returns the status of the Iperf session ID indicated          |
| networkGetIperfLog       | Returns the output log from the Iperf session ID indicated    |
| networkDownloadFile      | Downloads a file                                              |
| networkPing              | Pings the IP provided                                         |
| networkIperfStart        | Starts a new Iperf session                                    |
| networkIperfStop         | Stops a specific Iperf session                                |
| redButtonResetTest       | To test the red button reset                                  |
| runnerAccessTest         | Runner functionality verification                             |
| sdramTest                | Runs the SDRAM memory test                                    |
| temperatureCapSensors    | Returns the temperature sensors supported                     |
| temperatureGetCurrent    | Returns the current temperature from the sensor requested     |
| temperatureGetLimits     | Returns the temperature sensor limits                         |
| temperatureTest          | Tests one or all sensors against the limit specified          |
| TiltGetAngles            | This command return the tilt sensor angles                    |
| TiltGetOrientation       | This command return the current BGW orientation               |
| usbCapCount              | Returns the number of USB ports                               |
| usbGetBulkPresent        | Returns whether the PCI card for the USB bulk test is present |
| usbMemoryFSTest          | Command to test a USB filesystem                              |
| usbBulkTest              | Runs the USB bulk test                                        |
| usbExtBulkTest           | Runs the USB bulk test using NET2280 PCI-USB card             |
| wifiCapPresent           | Returns whether the box supports WiFi                         |

Figure 5-2: BIST CLI Help (2)



```
wifiCapPresent           Returns whether the box supports WiFi
wifiCapAntennaCount      Returns the number of antennas supported
wifiSetPassword          Sets the password that the connection will use
wifiSetAntenna           Sets the antenna(s) to use
wifiSetPowerState        Sets the WiFi module power state
wifiGetVersions           Returns the WiFi software versions
wifiGetSSIDCount         Returns the number of SSIDs found in the scan
wifiGetSSIDInfoByIndex   Returns the details of the SSID index indicated
wifiGetConnectionInfo    Returns the details of the current connection
wifiGetStats             Returns the network statistical information
wifiGetMAC               Returns the MAC address from the WiFi interface
wifiGetPhyRate           Returns the PHY rate
wifiStart                Initializes the WiFi drivers
wifiStop                 Stop the WiFi drivers
wifiConfigReset          Restores the configuration to factory defaults
wifiConnect              Joins a wireless network
wifiDisconnect           Leaves the current connection
wifiScan                 Runs a scan and creates a list with all the SSIDs found
wifiSetRadio             This command is used to set the radio as 2.4HZ , 5HZ and 6 GHZ
wifiResetStats           Resets the statistical information
wifiGetMcs                Get the Mcs values
wifiGetWpsPin            This command is used to get wps pin
wifiSetWpsPin            This command is used to set wps pin
wifiSetMcs               Set the Mcs values
-----
sfpDomMonitoringTest     Read SFP EEPROM via I2C
sfpPrbsGenerate          Generate PRBS pattern from SFP
-----
voicePcmAccessTest       Validate PCM for VoIP by probing
-----
serDesAccessTest         Validate set SERDES settings for SFP port
gponONUIDGet             Get GPON ONU ID
gponModeGet              Get GPON Mode in BGW
gponStateGet             Get GPON State in BGW
gponSNPwvGet             Get GPON Serial Number and Password in BGW
-----
cellularDeviceInfo        Cellular Device Information
cellularSecMode          Returns whether 5G module in Secure or Non-Secure mode
```

```
-----
cellularDeviceInfo        Cellular Device Information
cellularSecMode          Returns whether 5G module in Secure or Non-Secure mode
cellularSetUsbState       Sets the USB state is on/off
cellularSetUartState      Sets the UART state is on/off
cellularGetQCNVersion     Returns the QCX versions
cellularBackupQCNVersion  Returns the QCX versions
cellularChkCalData        Returns whether calibration data is present or not
cellularFlashUpdate       Update the 5G cellular modem firmware
cellularSetIMEI           Set IMEI number
cellularGetBootStatus     Cellular Get Boot Status
cellularResetFactory      Cellular Reset Factory
cellularReboot            Cellular Reboot
cellularSetSerialNum      Cellular Set Serial Number
cellularGetOpMode         Cellular Get Operating Mode
cellularGetSIMStatus      Cellular GetSIM Status
cellularGetDeviceLog       Cellular Get Device Log
cellularGetCpuUsage       Cellular Get CPU Usage
cellularGetMemoryUsage    Cellular Get Memory Usage
cellularGetThermalStatus  Returns the Thermal status
labuser@ATlab05:/bin$ █
```

Figure 5-3: BIST CLI Help (3)



## 5.1 BOX Test Commands

### 5.1.1 boxCapAVS

**Test Command Description:**

This test is executed to get information about the box using the CLI command. The boxCapAVS test case output will be displayed as shown in Figure 5-4.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client boxCapAVS

AVS is supported

BIST TEST RESULT: boxCapAVS: PASSED
```

Figure 5-4: boxCapAVS Command

### 5.1.2 boxGetAVSVoltage

**Test Command Description:**

This test is executed to get information about the box using the CLI command. The boxGetAVSVoltage test case output will be displayed as shown in Figure 5-5.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client boxGetAVSVoltage
Voltage(mV):977

BIST TEST RESULT: boxGetAVSVoltage: PASSED
```

Figure 5-5: boxGetAVSVoltage Command

### 5.1.3 boxGetCPUUsage

**Test Command Description:**

This test case is executed to check that upon executing boxGetCPUUsage the CPU usage is returned. The boxGetCPUUsage test case output will be displayed as shown in Figure 5-6.

**Test Pre-requisites:** NA

**Test Mode:** Normal and Special Mode

**Test Screenshot:**



```
root@labuser-OptiPlex-380:/bin# ./bist_client boxGetCPUUsage
CPUUsage:4%
BIST TEST RESULT: boxGetCPUUsage:PASSED
```

Figure 5-6: boxGetCPUUsage Command

## 5.1.4 boxReboot

**Test Command Description:**

This test is used check that the target reboots successfully upon giving boxReboot command. The boxReboot test case output will be displayed as shown in Figure 5-7.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client boxReboot
Waiting up to 10s for password request
Got password request in 0 seconds. Sending password and testing connection...
Received connection string (23) '
BIST Dataport Started'
libBIST version 0.02 connected to BIST version 0.02
BIST TEST RESULT: boxReboot:PASSED
```

Figure 5-7: boxReboot Test

## 5.1.5 Get BIST Version

**Test Command Description:**

This test is used to get the BIST version. Test case output will be displayed as shown in Figure 5-8.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode and Special Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client bistGetVersion
BIST Version:1.0
BIST TEST RESULT: bistGetVersion:PASSED
```

Figure 5-8: Get BIST Version Test



## 5.1.6 Get Model

**Test Command Description:**

This test is used to get the hardware model. Test case output will be displayed as shown in Figure 5-9.

**Test Pre-requisites:** NA

**Test Mode:** Normal and Special Mode

**Test Screenshot:**

```
root@ATlab05:/home/labuser/Karuna/DRY_TEST12# ./bist_client getModel
Model:CGW150_400_SGC

BIST TEST RESULT: getModel:PASSED
```

Figure 5-9: Get Model Test

## 5.2 Control/UART Test Commands

### 5.2.1 controlCapBuild

**Test Command Description:**

This command is used to test the control capabilities using the CLI command. The controlCapBuild test case output will be displayed as shown in Figure 5-10.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client controlCapBuild
BuildBIST:debug
Source:flash

BIST TEST RESULT: controlCapBuild:PASSED
```

Figure 5-10: controlCapBuild Command

### 5.2.2 controlSetRS232Speed

**Test Command Description:**

This command is used to set the RS232 Serial speed using the CLI command. The controlSetRS232Speed test case output will be displayed as shown in Figure 5-11.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
root@labuser-OptiPlex-380:/bin# ./bist_client controlSetRS232Speed high
RS232 speed is set to 115200 successfully
BIST TEST RESULT: controlSetRS232Speed: PASSED
root@labuser-OptiPlex-380:/bin#
```

Figure 5-11: controlSetRS232Speed Command

### 5.2.3 controlRunScript

**Test Command Description:**

This test case is executed to check that upon executing controlRunScript the script file present in USB is successfully executed. The controlRunScript test case output will be displayed as shown in Figure 5-12.

**Test Pre-requisites:** USB has to be inserted in USB port(s). The name of the script file present in USB should be 'bist\_test.sh'

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client controlRunScript bist_test.sh
Result:0
Delay:2
BIST TEST RESULT: controlRunScript: PASSED
```

Figure 5-12: controlRunScript Command

## 5.3 Ethernet Test Commands

### 5.3.1 ethernetCapPresent

**Test Command Description:**

This test case is executed to get the Ethernet interface capabilities. The ethernetCapPresent test case output will be displayed as shown in Figure 5-13.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ethernetCapPresent

Testing EthernetCapPresent command...

Ethernet is Supported in BGW320.

PHY ID for WAN port 0 is 0x1
PHY ID for LAN port 1 is 0x2
PHY ID for LAN port 2 is 0x3
PHY ID for LAN port 3 is 0x4
PHY ID for LAN port 4 is 0x1E

Number of Ethernet Ports: 5
Number of LAN Ethernet Ports: 4
Number of WAN Ethernet Ports: 1

BIST TEST RESULT: ethernetCapPresent: PASSED
```

Figure 5-13: ethernetCapPresent Tests

## 5.4 Flash Test Commands

### 5.4.1 flashCapeMMC

**Test Command Description:**

This test case is used to check for the presence of eMMC Flash. The flashCapeMMC test case output will be displayed as shown in Figure 5-15.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client flashCapeMMC

eMMC Flash is present /dev/mmcblk0
eMMC Flash is present

BIST TEST RESULT: flashCapeMMC: PASSED
```

Figure 5-15: flashCapeMMC Test Commands

### 5.4.2 flashGetBlockData

**Test Command Description:**



This test case is used to get the number of blocks present in the Flash device along with the number of bad blocks. The flashGetBlockData test case output will be displayed as shown in Figure 5-16.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$  
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client flashGetBlockData  
TotalBlocks:7622852  
BadBlocks:0  
  
BIST TEST RESULT: flashGetBlockData:PASSED
```

**Figure 5-16: flashGetBlockData Tests**

### 5.4.3 flashUpdate

**Test Command Description:**

flashUpdate can be done using below two method.

1. Using TFTP server

**Using TFTP Server:**

TFTP server needs to be run on Host machine. Copy the Upgradable image to root path of TFTP server in host. Establish ethernet connection between RG and Host machine. Image will be downloaded from TFTP server to respective eMMC partitions during upgrade.

**Command:**

```
./bist_client flashUpdate http <filename>
```

The flashUpdate will be executed and the result will be displayed as shown in Figure 5-17.

**Test Pre-requisites:** NA



**NOTE:**

- TFTP: Copy the turquoise image to root path of TFTP server before executing this test.

**Test Mode:** Limited Mode

**Test Screenshot:**



### Figure 5-17: flashUpdate Tests



## 5.5 Log Test Command

### **Test Command Description:**

This test is used to copy all the logs to a specified path. The logTest test case output will be displayed as shown in Figure 5-19.

### **Test Pre-requisites:** NA

### **Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client logCopy /tmp

[: /tmp/bistlog/iperf_1: unknown operand
tar: removing leading '/' from member names
BIST log files are copied to : /tmp/BGW320_505_BIST.tar

BIST TEST RESULT: logCopy: PASSED
```

Figure 5-19: Log Test Command

## 5.6 SDRAM Test Command

### **Test Command Description:**

This test is used to verify the read/write operations in the DDR memory in CGW450. Limited test will run in Normal Mode. Extended test will run in Special Mode. In Special Mode, Walking test will take around 40 mins to complete. A confirmation should be entered in the Linux Host. As an input to this confirmation, enter "yes" to run the test or "no" to exit the test. The SDRAM test case output will be displayed as shown from Figure 5-20 to Figure 5-22.

### **Test Pre-requisites:** NA

### **Test Mode:** Special Mode and Normal Mode



**NOTE:** This test will take around 40 mins to complete in special Mode.

### **Test Screenshot:**



```
root@labuser-OptiPlex-380:/bin# ./bist_client sdramTest
Waiting up to 10s for password request
Got password request in 0 seconds. Sending password and testing connection...
Received connection string (23) '
BIST Dataport Started'
libBIST version 0.02 connected to BIST version 0.02

Testing Limited Test Case...

Starting SDRAM Read/Write Test...

Memory To Test: 50 MBMEM TEST Pattern: 0xAABBCCDD

Written value 0xAABBCCDD
Read value 0xAABBCCDD

Pattern Match: OK

Read/Write Test Case: DONE

Starting SDRAM Pattern Test...

Memory To Test: 50 MB
Starting Phase 1

MEM TEST Pattern = 0xAAAAAAAA
Please Wait - Test in progress...

Phase 1: SUCCESS

Starting Phase 2

MEM TEST Pattern = 0x55555555
Please Wait - Test in progress...

Phase 2: SUCCESS

Starting Phase 3

MEM TEST Pattern = 0xA5A5A5A5
Please Wait - Test in progress...

Phase 3: SUCCESS

Pattern Test Case: DONE

BIST TEST RESULT: sdramTest:PASSED
```

Figure 5-20: SDRAM CLI Tests (1)



```
root@labuser-OptiPlex-380:/bin# ./bist_client sdramTest Extended a5 1 18 100 10
Waiting up to 10s for password request
Got password request in 0 seconds. Sending password and testing connection...
Received connection string (23) '
BIST Dataport Started'
libBIST version 0.02 connected to BIST version 0.02

Starting SDRAM Pattern Test...

Memory To Test: 600 MB
Starting Phase 1

MEM TEST Pattern = 0xAAAAAAAA

Please Wait - Test in progress...

Phase 1: SUCCESS

Starting Phase 2

MEM TEST Pattern = 0x55555555

Please Wait - Test in progress...

Phase 2: SUCCESS

Starting Phase 3

MEM TEST Pattern = 0xA5A5A5A5

Please Wait - Test in progress...

Phase 3: SUCCESS

Pattern Test Case: DONE

BIST TEST RESULT: sdramTest:PASSED
```

Figure 5-21: SDRAM CLI Tests (2)

```
root@labuser-OptiPlex-380:/bin# ./bist_client sdramTest Extended walkingOnes 1 18 100 10

Memory To Test: 600 MB
Starting Phase 1
MEM TEST Pattern: Walking 1
Phase 1: SUCCESS

Starting Phase 2
MEM TEST Pattern: Walking 0
Phase 2: SUCCESS

Walking Test Case: DONE

BIST TEST RESULT: sdramTest:PASSED
```

Figure 5-22: SDRAM Test Command (3)



## 5.7 Network Test Commands

 Host IP should be 192.168.1.100

### 5.7.1 networkCapPresent

**Test Command Description:**

This test command displays the supported network interfaces. The networkCapPresent test case output will be displayed as shown in Figure 5-23.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkCapPresent

BR0      : Not Supported
BR1      : Supported
BR2      : Not Supported
ETH1     : Supported
ETH2     : Supported
ETH3     : Supported
ETH4     : Supported
ETH5     : Not Supported
wl0      : Supported
wl1      : Supported
wl2      : Supported

BIST TEST RESULT: networkCapPresent: PASSED
```

Figure 5-23: networkCapPresent Test Command

### 5.7.2 networkSetIP

**Test Command Description:**

This test command set the IP address for indicated interfaces. The networkSetIP test case output will be displayed as shown in Figure 5-24.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkSetIP lan1 10.10.10.10
BIST TEST RESULT: networkSetIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkSetIP lan2 10.10.10.10
BIST TEST RESULT: networkSetIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkSetIP lan3 10.10.10.10
BIST TEST RESULT: networkSetIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkSetIP lan4 10.10.10.10
BIST TEST RESULT: networkSetIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkSetIP br1 192.168.1.254
BIST TEST RESULT: networkSetIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkSetIP wifi_5GHz_low 192.168.1.2
BIST TEST RESULT: networkSetIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkSetIP wifi_2GHz 192.168.1.3
BIST TEST RESULT: networkSetIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkSetIP wifi_5GHz_high 192.168.1.4
BIST TEST RESULT: networkSetIP: PASSED
```

Figure 5-24: networkSetIP Test Command

### 5.7.3 networkGetIP

**Test Command Description:**

This test command gets the IP address for the indicted interfaces. The networkGetIP test case output will be displayed as shown in Figure 5-25.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetIP br1
IP:192.168.1.254

BIST TEST RESULT: networkGetIP:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetIP lan1
IP:10.10.10.10

BIST TEST RESULT: networkGetIP:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetIP lan2
IP:20.20.20.20

BIST TEST RESULT: networkGetIP:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetIP lan3
IP:30.30.30.30

BIST TEST RESULT: networkGetIP:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetIP lan4
IP:40.40.40.40

BIST TEST RESULT: networkGetIP:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetIP wifi_5GHz_low
IP:192.168.1.2

BIST TEST RESULT: networkGetIP:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetIP wifi_5GHz_high
IP:192.168.1.4

BIST TEST RESULT: networkGetIP:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetIP wifi_2GHz
IP:192.168.1.3

BIST TEST RESULT: networkGetIP:PASSED
```

Figure 5-25: networkGetIP Test Command

## 5.7.4 networkGetDHCPServerIP

### **Test Command Description:**

This test command gets the DHCP server IP address. The networkGetDHCPServerIP test case output will be displayed as shown in Figure 5-26.

### **Test Pre-requisites:** NA

### **Test Mode:** Special Mode

### **Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetDHCPServerIP br1
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetDHCPServerIP lan1
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetDHCPServerIP lan2
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetDHCPServerIP lan3
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetDHCPServerIP lan4
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetDHCPServerIP wifi_5GHz_low
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetDHCPServerIP wifi_5GHz_high
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetDHCPServerIP wifi_2GHz
IP:192.168.1.254

BIST TEST RESULT: networkGetDHCPServerIP: PASSED
```

Figure 5-26: networkGetDHCPServerIP Test Command

## 5.7.5 networkGetInterfaceFlags

**Test Command Description:**

This test command gets flags for the BIST network interface indicated. The networkGetInterfaceFlags test case output will be displayed as shown in Figure 5-27.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetInterfaceFlags br1
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetInterfaceFlags lan1
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetInterfaceFlags lan2
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetInterfaceFlags lan3
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetInterfaceFlags lan4
Flags:UP BROADCAST MULTICAST

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetInterfaceFlags wifi_5GHz_low
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetInterfaceFlags wifi_5GHz_high
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetInterfaceFlags wifi_2GHz
Flags:UP BROADCAST RUNNING MULTICAST CARRIER

BIST TEST RESULT: networkGetInterfaceFlags:PASSED
```

Figure 5-27: networkGetInterfaceFlags Test Command

## 5.7.6 networkGetMAC

**Test Command Description:**

This test command gets MAC address for the BIST network interface indicated. The networkGetMAC test case output will be displayed as shown in Figure 5-28.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetMAC br1
MAC:00:10:18:00:00:00

BIST TEST RESULT: networkGetMAC:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetMAC lan1
MAC:00:10:18:00:00:00

BIST TEST RESULT: networkGetMAC:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetMAC lan2
MAC:00:10:18:00:00:00

BIST TEST RESULT: networkGetMAC:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetMAC lan3
MAC:00:10:18:00:00:00

BIST TEST RESULT: networkGetMAC:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetMAC lan4
MAC:00:10:18:00:00:00

BIST TEST RESULT: networkGetMAC:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetMAC wifi_5GHz_low
MAC:00:90:4C:1B:00:01

BIST TEST RESULT: networkGetMAC:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetMAC wifi_2GHz
MAC:00:90:4C:1B:00:01

BIST TEST RESULT: networkGetMAC:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetMAC wifi_5GHz_high
MAC:00:90:4C:1B:00:01

BIST TEST RESULT: networkGetMAC:PASSED
```

Figure 5-28: networkGetMAC Test Command

### 5.7.7 networkGetPortName

**Test Command Description:**

This test command gets the port name for the indicated network interface. The networkGetPortName test case output will be displayed as shown in Figure 5-29.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetPortName br1
PortName:br1

BIST TEST RESULT: networkGetPortName:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetPortName lan1
PortName:eth1

BIST TEST RESULT: networkGetPortName:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetPortName lan2
PortName:eth2

BIST TEST RESULT: networkGetPortName:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetPortName lan3
PortName:eth3

BIST TEST RESULT: networkGetPortName:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetPortName lan4
PortName:eth4

BIST TEST RESULT: networkGetPortName:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetPortName wifi_5GHz_low
PortName:wlo

BIST TEST RESULT: networkGetPortName:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetPortName wifi_5GHz_high
PortName:wli

BIST TEST RESULT: networkGetPortName:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkGetPortName wifi_2GHz
PortName:wli

BIST TEST RESULT: networkGetPortName:PASSED
```

Figure 5-29: networkGetPortName Test Command

## 5.7.8 networkPing

### Test Command Description:

This test command is used to perform ping operation of the IP address indicated. The networkPing test case output will be displayed as shown in Figure 5-30.

### Test Pre-requisites: NA

**Test Mode:** Special Mode and Normal Mode

### Test Screenshot:

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client networkPing br1 192.168.1.100

Port br1 IP: 192.168.1.254
Pinging 192.168.1.100 on br1...

BIST TEST RESULT: networkPing:PASSED
```

Figure 5-30: networkPing Test Command



## 5.7.9 networkIperfStart

### Test Command Description:

This test command is used to start an iperf session on the network interface.

The networkIperfStart (Client) test case output will be displayed as shown in Figure 5-31 and Figure 5-32. This test will execute Iperf or Iperf3 client from CGW450.

The networkIperfStart (Server) test will be executed and the result will be displayed as shown from Figure 5-33 and Figure 5-34. This test will execute Iperf or Iperf3 server from CGW450.

**Test Pre-requisites:** IPerf server must be started on peer for iperf test and iperf3 server should be started for iperf3 test.

Iperf or Iperf3 client must be started from peer to communicate with Iperf or Iperf3 server in CGW450.

**Test Mode:** Special Mode

### Test Screenshot:

```
root@labuser-OptiPlex-380:/bin# ./bist_client networkIperfStart "iperf -c 192.168.1.100 -t 30 -i 5"
Waiting up to 10s for password request
Got password request in 0 seconds. Sending password and testing connection...
Received connection string (23) '
BIST Dataport Started'
libBIST version 0.02 connected to BIST version 0.02
Session:1922
BIST TEST RESULT: networkIperfStart:PASSED
```

Figure 5-31: networkIperf2Start Test Command

```
root@labuser-OptiPlex-380:/bin# ./bist_client networkIperfStart "iperf3 -c 192.168.1.100 -t 30 -i 5"
Session:1954
BIST TEST RESULT: networkIperfStart:PASSED
```

Figure 5-32: networkIperf3Start Test Command

```
root@labuser-OptiPlex-380:/bin# ./bist_client networkIperfStart "iperf -s -i1 -p 5011"
Session:11548
BIST TEST RESULT: networkIperfStart:PASSED
```

Figure 5-33: networkIperfStart (Server) Test Command

```
root@labuser-OptiPlex-380:/bin# ./bist_client networkIperfStart "iperf3 -s -i1 -p 5211"
Session:13849
BIST TEST RESULT: networkIperfStart:PASSED
```

Figure 5-34: networkIperf3Start (Server) Test Command

## 5.7.10 networkGetIperfStatus

### Test Command Description:



This test command is used to get the status of the iperf from the session indicated. The networkGetIperfStatus test case output will be displayed as shown in Figure 5-35.

**Test Pre-requisites:** networkIperfStart should be started before running this test.

**Test Mode:** Special Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client networkGetIperfStatus
Status:Running

BIST TEST RESULT: networkGetIperfStatus:PASSED
```

Figure 5-35: networkGetIperfStatus Test Command

## 5.7.11 networkGetIperfLog

**Test Command Description:**

This test command gets the output log from the session ID indicated. The networkGetIperfLog test case output will be displayed as shown in Figure 5-36.

**Test Pre-requisites:** networkIperfStart should be started before running this test.

**Test Mode:** Special Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client networkGetIperfLog
/bin/iperf -c 192.168.1.100 -t 30 -i 5

-----
Client connecting to 192.168.1.100, TCP port 5001
TCP window size: 90.0 KByte (default)
-----
[  3] local 192.168.1.1 port 36319 connected with 192.168.1.100 port 5001
[ ID] Interval           Transfer    Bandwidth
[  3]  0.0- 5.0 sec      57.1 MBytes  95.8 Mbits/sec
[  3]  5.0-10.0 sec      56.1 MBytes  94.2 Mbits/sec
[  3] 10.0-15.0 sec      55.9 MBytes  93.7 Mbits/sec
[  3] 15.0-20.0 sec      56.2 MBytes  94.4 Mbits/sec
[  3] 20.0-25.0 sec      56.1 MBytes  94.2 Mbits/sec
[  3] 25.0-30.0 sec      56.2 MBytes  94.4 Mbits/sec
[  3]  0.0-30.0 sec      338 MBytes  94.4 Mbits/sec
IPERF LOG END

BIST TEST RESULT: networkGetIperfLog:PASSED
```

Figure 5-36: networkGetIperfLog Test Command

## 5.7.12 networkIperfStop

**Test Command Description:**



This test command is used to stop the iperf session for the indicated session ID. The networkIperfStop test will be executed and the result will be displayed as shown in Figure 5-37.

**Test Pre-requisites:** networkIperfStart should be started before running this test.

**Test Mode:** Special Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client networkIperfStop
Session ID = 1922
BIST TEST RESULT: networkIperfStop: PASSED
```

Figure 5-37: networkIperfStop Test Command

### 5.7.13 networkDownloadFile

**Test Command Description:**

This test command is used to download a file from the IP address indicated. The networkDownloadFile test case output will be displayed as shown in Figure 5-38.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client networkDownloadFile br0 http://192.168.1.100/index.html
BIST TEST RESULT: networkDownloadFile: PASSED
root@labuser-OptiPlex-380:/bin# █
```

Figure 5-38: networkDownloadFile Test Command

## 5.8 Temperature Test Commands

### 5.8.1 temperatureCapSensors

**Test Command Description:**

This test command is used to check the interfaces, which will support temperature sensors. The temperatureCapSensors test case output will be displayed as shown in Figure 5-39.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureCapSensors
Testing Temperature Sensor Capability Command...

Supported Temperature sensors:

cpu:Supported
wifi_2GHz:Supported
wifi_5GHz_low:Supported
wifi_5GHz_high:Supported

BIST TEST RESULT: temperatureCapSensors:PASSED
```

Figure 5-39: TemperatureCapSensors Test Command

## 5.8.2 temperatureGetCurrent

### Test Command Description:

This test command is used to get the current temperature of the indicated sensor. The temperatureGetCurrent test case output will be displayed as shown in Figure 5-40.

### Test Pre-requisites: NA

### Test Mode: Special Mode and Normal Mode

### Test Screenshot:

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureGetCurrent cpu
Waiting up to 10s for password request
Got password request in 0 seconds. Sending password and testing connection...
Received connection string (23) '
BIST Dataport Started'
libBIST version 0.02 connected to BIST version 0.02
Testing Current Temperature Get Command...

Temperature[C]:43

BIST TEST RESULT: temperatureGetCurrent:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureGetCurrent wifi_2GHz
Testing Current Temperature Get Command...

Temperature[C]:26

BIST TEST RESULT: temperatureGetCurrent:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureGetCurrent wifi_5GHz_low
Testing Current Temperature Get Command...

Temperature[C]:26

BIST TEST RESULT: temperatureGetCurrent:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureGetCurrent wifi_5GHz_high
Testing Current Temperature Get Command...

Temperature[C]:31

BIST TEST RESULT: temperatureGetCurrent:PASSED
```

Figure 5-40: TemperatureGetCurrent Test Command



### 5.8.3 temperatureGetLimits

**Test Command Description:**

This test command is used to get the temperature threshold for the mentioned temperature sensor. The temperatureGetLimits test will be executed and the result will be displayed as shown in Figure 5-41.

**Test Pre-requisites:** NA**Test Mode:** Special Mode and Normal Mode**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureGetLimits cpu
Testing Temperature Get Limits Command...

Safe[C]:70
Warning[C]:65
Shutdown[C]:75

BIST TEST RESULT: temperatureGetLimits:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureGetLimits wifi_2GHz
Testing Temperature Get Limits Command...

Safe[C]:40
Warning[C]:45
Shutdown[C]:55

BIST TEST RESULT: temperatureGetLimits:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureGetLimits wifi_5GHz_low
Testing Temperature Get Limits Command...

Safe[C]:40
Warning[C]:45
Shutdown[C]:55

BIST TEST RESULT: temperatureGetLimits:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureGetLimits wifi_5GHz_high
Testing Temperature Get Limits Command...

Safe[C]:40
Warning[C]:45
Shutdown[C]:55

BIST TEST RESULT: temperatureGetLimits:PASSED
```

Figure 5-41: TemperatureGetLimits Tests

### 5.8.4 temperatureTest

**Test Command Description:**

This test command is used to validate if the mentioned temperature sensor's temperature is within the applicable range. The temperatureTest test case output will be displayed as shown in Figure 5-42 and Figure 5-43.

**Test Pre-requisites:** NA



 Note: This test will do negative test also. It will throw error when it is tried to set temperature limit less than current temperature.

**Test Mode:** Special Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest cpu warning
Testing Temperature Set Command...

Temperature[C]:43

Testing temperature against warning limits[65C]
Sensor CPU current temperature 43C is with in limits 65C

BIST TEST RESULT: temperatureTest:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest cpu shutdown
Testing Temperature Set Command...

Temperature[C]:43

Testing temperature against shutdown limits[75C]
Sensor CPU current temperature 43C is with in limits 75C

BIST TEST RESULT: temperatureTest:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest cpu custom 90
Testing Temperature Set Command...

Temperature[C]:43

Testing temperature against custom limits[90C]
Sensor CPU current temperature 43C is with in limits 90C

BIST TEST RESULT: temperatureTest:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest wifi_2GHz warning
Testing Temperature Set Command...

Temperature[C]:26

Testing temperature against warning limits[45C]
Sensor WiFi_2GHz current temperature 26C is with in limits 45C

BIST TEST RESULT: temperatureTest:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest wifi_2GHz shutdown
Testing Temperature Set Command...

Temperature[C]:26

Testing temperature against shutdown limits[55C]
Sensor WiFi_2GHz current temperature 26C is with in limits 55C

BIST TEST RESULT: temperatureTest:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest wifi_5GHz_low warning
Testing Temperature Set Command...

Temperature[C]:27
```

**Figure 5-42: TemperatureTest Command (1)**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest wifi_5GHz_low shutdown
Testing Temperature Set Command...

Temperature[C]:27

Testing temperature against shutdown limits[55C]
Sensor WiFi_5GHz_low current temperature 27C is with in limits 55C

BIST TEST RESULT: temperatureTest:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest wifi_5GHz_high warning
Testing Temperature Set Command...

Temperature[C]:31

Testing temperature against warning limits[45C]
Sensor WiFi_5GHz_high current temperature 31C is with in limits 45C

BIST TEST RESULT: temperatureTest:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client temperatureTest wifi_5GHz_high shutdown
Testing Temperature Set Command...

Temperature[C]:31

Testing temperature against shutdown limits[55C]
Sensor WiFi_5GHz_high current temperature 31C is with in limits 55C

BIST TEST RESULT: temperatureTest:PASSED
```

Figure 5-43 Temperature test command (2)

## 5.9 Wi-Fi Test Commands

Wi-Fi should be started before running all Wi-Fi test cases in command line mode.

```
#./bist_client wifiStart
```

### 5.9.1 wifiStart

**Test Command Description:**

This test command is used to initialize the Wi-Fi. The wifiStart test case output will be displayed as shown in Figure 5-44.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
BIST TEST RESULT: wifiStart:connect to 1
# bist_client wifiStart
WIFI 5GHZ is UP
WIFI 2GHZ is UP

BIST TEST RESULT: wifiStart:PASSED
```

Figure 5-44: wifiStart Test Commands



## 5.9.2 wifiCapPresent

**Test Command Description:**

This test command is used to get the Wi-Fi capabilities. The wifiCapPresent test case output will be displayed as shown in Figure 5-45.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
# bist_client wifiCapPresent
INTERFACE=w10
w10      : Supported.
WIFI Capability for w10 WIFI 5GHZ
INTERFACE=w12
w12      : Supported.
WIFI Capability for w12 WIFI 2GHZ

BIST TEST RESULT: wifiCapPresent: PASSED
# █
```

Figure 5-45: WifiCapPresent Test Command

## 5.9.3 wifiCapAntennaCount

**Test Command Description:**

This test command is used to get the antenna count supported. The wifiCapAntennaCount test case output will be displayed as shown in Figure 5-46.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiCapAntennaCount
AntennaCount:13
wifiCapAntennaCount: PASSED
```

Figure 5-46: WifiCapAntennaCount Test Command

## 5.9.4 wifiSetAntenna

**Test Command Description:**



This command is used to set the antenna for Wi-Fi. The wifiSetAntenna test case output will be displayed as shown in Figure 5-47.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiSetAntenna true true true false
Antennas are configured successfully
wifiSetAntenna:PASSED
root@labuser-OptiPlex-380:/bin#
```

Figure 5-47: WifiSetAntenna Test Command

## 5.9.5 wifiGetVersions

**Test Command Description:**

This test command is used to get the Wi-Fi firmware version. The wifiGetVersions test case output will be displayed as shown in Figure 5-48.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiGetVersions
FirmwareVersion:17.10 RC25.3

BIST TEST RESULT: wifiGetVersions:PASSED
```

Figure 5-48: WifiGetVersions Test Command

## 5.9.6 wifiScan



Note: Before running wifiScan test, the target should be configured to station mode.

**Test Command Description:**

This test command is used to scan the SSID's found in the applicable range. The wifiScan test case output will be displayed as shown in Figure 5-49.

**Test Pre-requisites:** At least one Wi-Fi SSID should be available in the applicable range.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

Figure 5-49: wifiScan Test Command



## 5.9.7 wifiGetSSIDCount



Note: Before running wifiScan test, the target should be configured to station mode.

### **Test Command Description:**

This test command is used to get the total SSID count supported by the Wi-Fi device. The wifiGetSSIDCount test case output will be displayed as shown in Figure 5-50.

**Test Pre-requisites:** At least one Wi-Fi SSID should be available in the applicable range.

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiGetSSIDCount
SSIDCount:239
wifiGetSSIDCount:PASSED
```

Figure 5-50: wifiGetSSIDCount Test Command

## 5.9.8 wifiGetSSIDInfoByIndex

### **Test Command Description:**

This test command is used to Returns the details of the SSID information for specific index. The wifiGetSSIDInfoByIndex test case output will be displayed as shown in Figure 5-51.

**Test Pre-requisites:** Station (mobile/laptop) should be connected to RG via Wi-Fi.



Note: At least one station should be connected to RG.

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiGetSSIDInfoByIndex 1 1
interface = wl1, ssidindex = 1
SSID: "ATTsGuG5ZA"
rssi: -81
Noise: 0
channel: 6
BSSID: 4C:D0:8A:26:8A:B3
wifiGetSSIDInfoByIndex:PASSED
```

Figure 5-51: wifiGetSSIDInfoByIndex Test Command

## 5.9.9 wifiGetStats

### **Test Command Description:**



This test command is used to get the Wi-Fi interface statistics. The wifiGetStats test case output will be displayed as shown in Figure 5-51.

**Test Pre-requisites:** Station (mobile/laptop) should be connected to RG via Wi-Fi.



Note: At least one station should be connected to RG.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiGetStats
Uptime[secs]:0s
DisconnectionsBoot:0
TXPackets:0
TXBytes:0
RXPackets:0
RXBytes:0
wifiGetStats: PASSED
```

Figure 5-51: wifiGetStats Test Command

## 5.9.10 wifiGetMAC

**Test Command Description:**

This test case is used to get the MAC address of the Wi-Fi interface. The wifiGetMAC test case output will be displayed as shown in Figure 5-52.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiGetMAC
MAC:cur_etheraddr: 00:90:4C:2C:20:77
cur_etheraddr: 00:90:4C:2C:30:00
cur_etheraddr: 00:90:4C:2C:20:88
wifiGetMAC: PASSED
```

Figure 5-52: wifiGetMAC Test Command

## 5.9.11 wifiResetStats

**Test Command Description:**

This test command is used to reset the Wi-Fi interface statistics. The wifiResetStats test case output will be displayed as shown in Figure 5-53.

**Test Pre-requisites:** Station (mobile/laptop) should be connected to RG via Wi-Fi.



Note: At least one station should be connected to RG.

**Test Mode:** Special Mode



**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiResetStats

Interface status before reset
Tx_packets :0
Rx_packets :0

Interface status after reset
Tx_packets :0
Rx_packets :0
wifiResetStats: PASSED
```

Figure 5-53: wifiResetStats Test Command

## 5.9.12 wifiConnect

**Test Command Description:**

This test command is used to get the information of connected station.

wifiGetConnectionInfo is used to get connected stations information. wifiConnect command is not supported in AP mode.

**Test Pre-requisites:** Station (mobile/laptop) should be connected to RG via Wi-Fi.



Note: At least one station should be connected to RG.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiGetConnectionInfo
Connected-Client-BSSID for interface wl0 = 30:35:AD:B5:70:4E
Connected-Client-BSSID for interface wl1 =
Connected-Client-BSSID for interface wl2 =
wifiGetConnectionInfo: PASSED
labuser@labuser-OptiPlex-380:/bin$ █
```

Figure 5-54: wifiConnect Test Command

## 5.9.13 wifiDisconnect

**Test Command Description:**

This test command is used to de-initialize the Wi-Fi. The wifiStop test case output will be displayed as shown in Figure 5-55.

**Test Pre-requisites:** NA



Note: User has to run wifiStart test to continue Wi-Fi test cases.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiDisconnect  
wl0 down  
wl1 down  
wl2 down  
wifiDisconnect: PASSED
```

Figure 5-55: wifiDisconnect Test Command

### 5.9.14 wifiSetPassword

**Test Command Description:**

This test command is used to set Wi-Fi password. The wifiSetPassword test case output will be displayed as shown in Figure 5-56.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiSetPassword  
wifiSetPassword: PASSED  
labuser@labuser-OptiPlex-380:/bin$
```

Figure 5-56: wifiSetPassword Test Command

### 5.9.15 wifiConfigReset

**Test Command Description:**

This test command is used to reset the configurations and reboot the box. The wifiConfigReset test case output will be displayed as shown in Figure 5-57.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiConfigReset  
Waiting up to 10s for password request  
Got password request in 0 seconds. Sending password and testing connection...  
Received connection string (23) '  
BIST Dataport Started'  
libBIST version 0.02 connected to BIST version 0.02
```

Figure 5-57: wifiConfigReset Test Command

### 5.9.16 wifiSetPowerState

**Test Command Description:**



This test command is used to set the Wi-Fi power state. The wifiSetPowerState test case output will be displayed as shown in Figure 5-58.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiSetPowerState on
Enabling WIFI Power
wifiSetPowerState: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiSetPowerState off
Disabling WIFI Power
wifiSetPowerState: PASSED
```

Figure 5-58: wifiSetPowerState Test Command

## 5.9.17 wifiSetRadio

**Test Command Description:**

This test command is used to enable/disable the Wi-Fi radio. The wifiSetRadio test will be executed and the result will be displayed as shown in Figure 5-59.

**Test Pre-requisites:** NA



Note: User must run wifiStart test to continue Wi-Fi test cases.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiSetRadio 1 0
wl0 interface down
wl2 interface down
wifiSetRadio: PASSED
```

Figure 5-59: wifiSetRadio Test Command

## 5.9.18 wifiStop

**Test Command Description:**

This test command is used to de-initialize the Wi-Fi. The wifiStop test case output will be displayed as shown in Figure 5-60.

**Test Pre-requisites:** NA



Note: User must run wifiStart test to continue Wi-Fi test cases.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
root@labuser-OptiPlex-380:/bin# ./bist_client wifiStop  
wl0 down  
wl1 down  
wl2 down  
wifiStop: PASSED
```

Figure 5-60: wifiStop Test Command

### 5.9.19 wifiPhyRate

**Test Command Description:**

This test command is used to get the Phy Rate of the Wi-Fi. The wifiPhyRate test case output will be displayed as shown in Figure 5-61.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:~/sprint8$ sudo ./bist_client wifiGetPhyRate  
WIFIRADIO_5GHZ_LOW interface: 573.5 Mbps  
  
WIFIRADIO_5GHZ_HIGH interface: 1147 Mbps  
  
WIFIRADIO_2GHZ interface: 573.5 Mbps  
  
wifiGetPhyRate: PASSED
```

Figure 5-61: wifiPhyRate Test Command

### 5.9.20 wifiGetMcs

**Test Command Description:**

This test command is used to get the MCS value of the Wi-Fi. The wifiGetMcs test case output will be displayed as shown in Figure 5-62.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
@labuser-OptiPlex-380: /bin
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiGetMcs

wl0: MCS SET : [ 0 1 2 3 4 5 8 ]
wl1: MCS SET : [ 0 1 2 3 4 5 8 ]
wl2: MCS SET : [ 0 1 2 3 4 5 8 ]
wifiGetMcs: PASSED
```

Figure 5-62: wifiGetMcs Test Command

### 5.9.21 wifiSetMcs

**Test Command Description:**

This test command is used to set the MCS value of the Wi-Fi. The wifiSetMcs test case output will be displayed as shown in Figure 5-63.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiSetMcs

Before Setting the MCS value
wl0: MCS SET : [ 0 1 2 3 4 5 8 ]
After Setting the MCS value
wl0: MCS SET : [ 0 1 2 3 4 5 8 ]

Before Setting the MCS value
wl1: MCS SET : [ 0 1 2 3 4 5 8 ]
After Setting the MCS value
wl1: MCS SET : [ 0 1 2 3 4 5 8 ]

Before Setting the MCS value
wl2: MCS SET : [ 0 1 2 3 4 5 8 ]
After Setting the MCS value
wl2: MCS SET : [ 0 1 2 3 4 5 8 ]
wifiSetMcs: PASSED
```

Figure 5-63: wifiSetMcs Test Command

### 5.9.22 wifiGetwpsPin

**Test Command Description:**

This test command is used to get the WPS pin. The wifiGetwpsPin test case output will be displayed as shown in Figure 5-64.



**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiGetwpsPin 0
wifiGetwpsPin: PASSED
```

Figure 5-64: wifiGetwpsPin Test Command

## 5.9.23 wifiSetwpsPin

**Test Command Description:**

This test command is used to set the WPS pin. The wifiSetwpsPin test case output will be displayed as shown in Figure 5-65.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client wifiSetwpsPin 0 13844356
wifiSetwpsPin: PASSED
```

Figure 5-65: wifiSetwpsPin Test Command

Figure 5-69: Runner Access Test Command



## 5.10 USB Test Commands

### 5.10.1 usbCapCount

**Test Command Description:**

This test command is used to get the number of USB ports available. The usbCapCount test case output will be displayed as shown in Figure 5-70.

**Test Pre-requisites:** Insert the USB

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client usbCapCount
Displaying number of USB ports available:

USBCapCount:2

BIST TEST RESULT: usbCapCount:PASSED
```

Figure 5-70: usbCapCount Test Command

### 5.10.2 usbMemoryFSTest

**Test Command Description:**

This test command is used to runs a USB flash memory file system. The usbMemoryFSTest test case output will be displayed as shown in Figure 5-71.

**Test Pre-requisites:** USB has to be inserted in USB port(s).

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client usbMemoryFSTest

Only one USB mass storage device detected

Memory FS test passed for the device /dev/sda1
test passed for all the ports

BIST TEST RESULT usbMemoryFSTest:PASSED
```

Figure 5-71: usbMemoryFSTest Command



```
labuser@labuser-OptiPlex-380: sudo ./bist_client usbBulkTest in 512 400

Only one USB mass storage device detected

Copying the USB file from data partition to usb mount point

Calculating the md5sums

Src MD5SUM: c522c1db31cc1f90b5d21992fd30e2ab
Dest MD5SUM: c522c1db31cc1f90b5d21992fd30e2ab

MD5SUM matches for device mounted on /mnt/disk1_1

usbBulkTest: PASSED

labuser@labuser-OptiPlex-380: sudo ./bist_client usbExtBulkTest in

usbExtBulkTest: PASSED
```

Figure 5-74: usbBulkTestIn Test Command

## 5.11 PON Test Commands

### 5.11.1 serdesAccessTest

**Test Command Description:**

This command is used to check the serdes register access. The serdesAccessTest test will be executed and the result will be displayed as shown in Figure 5-76.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode and Special Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client serDesAccessTest
Waiting up to 10s for password request
Got password request in 0 seconds. Sending password and testing connection...
Received connection string (23) '
BIST Dataport Started'
libBIST version 0.02 connected to BIST version 0.02

Serdes register is successfully written

BIST TEST RESULT: serDesAccessTest: PASSED
```

Figure 5-76: SerdesAccessTest command



## 5.12 Client Test Commands

### 5.12.1 ClientSetBootFlag

**Test Command Description:**

This test case is used to verify whether the Boot flag can be changed. The flag is changed to previous image to verify the possibility to modify it. After verification, the Boot flag is set to previous value. The ClientSetBootFlag test case output will be displayed as shown in Figure 5-80.

**Test Pre-requisites:**

Manufacturing partition should be updated properly otherwise test cases will fail.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientSetBootFlag

Current Boot Image Flag = [54]

New Image Flag is Set,so modifying to previous Image

BOOT Image Changed from [54] to [49]
BOOT Image Change :[SUCCESS]

Image Boot Flag Set back to Current =[54]

BIST TEST RESULT: ClientSetBootFlag:PASSED
```

Figure 5-80: ClientSetBootFlag Command

### 5.12.2 clientGetImageInfo

**Test Command Description:**

This test case is used to get image information from the flash. The clientGetImageInfo test case output will be displayed as shown in Figure 5-81 to Figure 5-82.

**Test Pre-requisites:**

Manufacturing partition should be updated properly otherwise test cases will fail.

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 0
Testing Client Get Info:

ImageName:ACTIVE
Image Number:2.0.5

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 5
Testing Client Get Info:

ImageName:ACTIVE
SW Build Date:Wed Jan 23 21:36:37

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 6
Testing Client Get Info:

ImageName:ACTIVE
HW Manufacturer:Nokia

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 7
Testing Client Get Info:

ImageName:ACTIVE
HW Model:BGW320-505

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 9
Testing Client Get Info:

ImageName:ACTIVE
MFG Information:Nokia

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 10
Testing Client Get Info:

ImageName:ACTIVE
SW Build ID:Turquoise 2.0

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 11
Testing Client Get Info:
```

Figure 5-81: ClientGetImageInfo Test Command (1)



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 11
Testing Client Get Info:

ImageName:ACTIVE
SW Major Version:2

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 12
Testing Client Get Info:

ImageName:ACTIVE
SW Minor Version:0

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 13
Testing Client Get Info:

ImageName:ACTIVE
Serial Number:N93FA8RY000067

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 14
Testing Client Get Info:

ImageName:ACTIVE
BOARD ID:0x1e

BIST TEST RESULT: ClientGetImageInfo:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ClientGetImageInfo 0 15
Testing Client Get Info:

ImageName:ACTIVE
HW VERSION:1.1(BCM68580X)

BIST TEST RESULT: ClientGetImageInfo:PASSED
```

Figure 5-82: ClientGetImageInfo Test Command (2)

### 5.12.3 ClientGetSecMode

**Test Command Description:**

This test case is used to get the SoC Secure Mode. The ClientGetSecMode test case output will be displayed as shown in Figure 5-83.

**Test Pre-requisites:**

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380: sudo ./bist_client ClientGetSecMode

SoC Secure Mode : Un-Secure

BIST TEST RESULT: ClientGetSecMode:PASSED
```

Figure 5-83: ClientGetSecMode Command



## 5.12.4 ClientGetSecImageInfo

### **Test Command Description:**

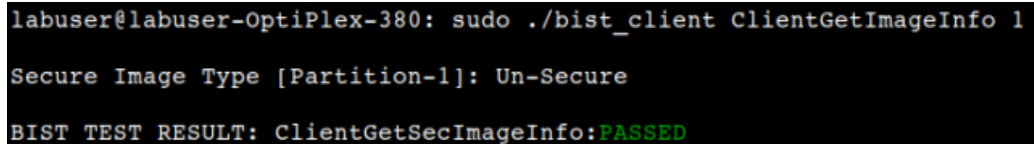
This test case is used to get the image in primary and backup partition is whether secured or not. The ClientGetSecImageInfo test case output will be displayed as shown in Figure 5-84.

```
./bist_client ClientGetImageInfo <partition>  
1: Partition-1  
2: Partition-2
```

### **Test Pre-requisites:**

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**



```
labuser@labuser-OptiPlex-380: sudo ./bist_client ClientGetImageInfo 1  
Secure Image Type [Partition-1]: Un-Secure  
BIST TEST RESULT: ClientGetSecImageInfo: PASSED
```

Figure 5-84: ClientGetSecImageInfo Command

## 5.12.5 ClientGetJtagOtpLockStatus

### **Test Command Description:**

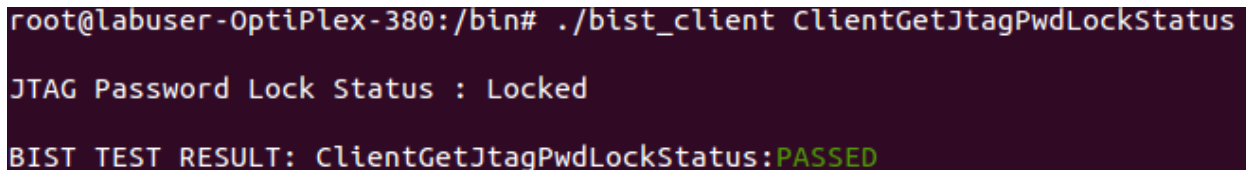
This test case is used to get the JTAG lock status. The ClientGetJtagOtpLockStatus test case output will be displayed as shown in Figure 5-84.

```
./bist_client ClientGetJtagOtpLockStatus
```

### **Test Pre-requisites:**

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**



```
root@labuser-OptiPlex-380:/bin# ./bist_client ClientGetJtagPwdLockStatus  
JTAG Password Lock Status : Locked  
BIST TEST RESULT: ClientGetJtagPwdLockStatus: PASSED
```

Figure 5-85: ClientGetJtagOtpLockStatus Command



## 5.12.6 ClientGetOtpCustLockStatus

### **Test Command Description:**

This test case is used to get the image in primary and backup partition is whether secured or not. The ClientGetOtpCustLockStatus test case output will be displayed as shown in Figure 5-84.

```
./bist_client ClientGetOtpCustLockStatus
```

### **Test Pre-requisites:**

**Test Mode:** Special Mode and Normal Mode

### **Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client ClientGetOtpCustLockStatus
JTAG Customer OTP Lock Status : Locked

BIST TEST RESULT: ClientGetOtpCustLockStatus: PASSED
root@labuser-OptiPlex-380:/bin#
```

Figure 5-86: ClientGetOtpCustLockStatus Command

## 5.12.7 ClientRunShellCommands

### 5.12.7.1 CSHELL

### **Test Command Description:**

This test case is used to execute the Cshell commands. Enter subtest case number as "1" in Ubuntu Linux Host. Type the command and press Enter. The command will be executed, and the result will be displayed as shown in Figure 5-87.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

### **Test Screenshot:**

```
labuser@labuser-OptiPlex-380:~/bist$ sudo ./bist_client RunShellCommand 1 "who"
Shell users:
          SCON unit 0 (maintenance console)

BIST TEST RESULT: RunShellCommand: PASSED
```

Figure 5-87: RunShellCommand Test Cshell Command



### 5.12.7.2 NSHELL

**Test Command Description:**

This test case is used to execute the Nshell commands. Enter subtest case number as "2" in Ubuntu Linux Host. Type the command and press Enter. The command will be executed, and the result will be displayed as shown in Figure 5-88.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:~/bist$ sudo ./bist_client RunShellCommand 2 "mfg show"

familyCode   : 0x00000000
serialNumber : 0x0000
customer     : 70
accessCode   : admin123
wirelessKey  : f6h5wafy8srf
wirelessSSID : ATTujdvb9i
serNumStr    : N93FA8RY000067
installDate  : 01/01/70 00:00:00 AM
baseMACAddr  : 00:00:00:00:00:00
maxMACAddrs  : 16
cfeFWUpdate  : 1
second wirelessKey : dd:R5`<o0yg1
second wirelessSSID : vatt3Ltj]6b
hwRev        : 0
boardId      : 0x1e
mfgId        :
hwVersion    : 1.1(BCM68580X)

BIST TEST RESULT: RunShellCommand: PASSED
labuser@labuser-OptiPlex-380:~/bist$
```

Figure 5-88: RunShellCommand Test Nshell Command

### 5.12.7.3 LINUXSHELL

**Test Command Description:**

This test case is used to execute the Linux shell commands. Enter subtest case number as "3" in Ubuntu Linux Host. Type the command and press Enter. The command will be executed, and the result will be displayed as shown in Figure 5-89.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:~/bist$ sudo ./bist_client RunShellCommand 3 "uname"
Linux
BIST TEST RESULT: RunShellCommand: PASSED
labuser@labuser-OptiPlex-380:~/bist$
labuser@labuser-OptiPlex-380:~/bist$ sudo ./bist_client RunShellCommand 3 "ls -l | grep webs"
drwxrwxr-x    8 root    root          3663 Mar  5  2019 webs
BIST TEST RESULT: RunShellCommand: PASSED
labuser@labuser-OptiPlex-380:~/bist$
```

Figure 5-89: RunShellCommand Test LINUXSHELL Command

## 5.13 LED Test Command

### 5.13.1 ledCapLEDs

**Test Command Description:**

This test case displays the LEDs supported. The ledCapLEDs test case output will be displayed as shown in Figure 5-90.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledCapLEDs
[sudo] password for labuser:
Service led1 Blue : Available
Service led2 Red  : Available
Service led3 Green: Available
Service led4 White: Available
WPS led1 Red     : Available
WPS led2 Green   : Available
BIST TEST RESULT: ledCapLEDs: PASSED
```

Figure 5-90: ledCapLEDs Test Command

### 5.13.2 ledSetState

**Test Command Description:**

This test sets the specified led with its color. The ledSetState test case output will be displayed as shown in Figure 5-91.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led1 on
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led1 dim
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led1 off
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led2 on
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led2 dim
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led2 off
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led3 on
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led3 dim
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led3 off
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led4 on
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led4 dim
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState service_led4 off
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState wps_led1 on
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState wps_led1 dim
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState wps_led1 off
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState wps_led2 on
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState wps_led2 dim
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client ledSetState wps_led2 off
BIST TEST RESULT: ledSetState:PASSED
root@labuser-OptiPlex-380:/bin#
```

**Figure 5-91: ledSetState Command**



### 5.13.3 getLedColor

**Test Command Description:**

This test case displays the current color of the LEDs supported. The getLedColor test case output will be displayed as shown in Figure 5-92.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client getLedColor service_led1
Blue
BIST TEST RESULT: getLedColor: PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client getLedColor service_led2
Red
BIST TEST RESULT: getLedColor: PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client getLedColor service_led3
Green
BIST TEST RESULT: getLedColor: PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client getLedColor service_led4
White
BIST TEST RESULT: getLedColor: PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client getLedColor wps_led1
Red
BIST TEST RESULT: getLedColor: PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client getLedColor wps_led2
Green
BIST TEST RESULT: getLedColor: PASSED
```

Figure 5-92: getLedColor Test Command

### 5.13.4 setLedColor

**Test Command Description:**

This test case sets the specified color to the respective led. The setLedColor test case output will be displayed as shown in Figure 5-93.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode



**Test Screenshot:**

```
root@labuser-OptiPlex-380:/bin# ./bist_client setLedColor blue
BIST TEST RESULT: setLedColor:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client setLedColor red
BIST TEST RESULT: setLedColor:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client setLedColor green
BIST TEST RESULT: setLedColor:PASSED
root@labuser-OptiPlex-380:/bin# ./bist_client setLedColor white
BIST TEST RESULT: setLedColor:PASSED
```

Figure 5-93: setLedColor Test Command

### 5.13.5 ledSetPattern

**Test Command Description:**

This test case sets the pattern specified by the user in all LEDs according to the pattern. The ledSetPattern test case output will be displayed as shown in Figure 5-94.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetPattern allAlternate
BIST TEST RESULT: ledSetPattern:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetPattern breathe
BIST TEST RESULT: ledSetPattern:PASSED
```

Figure 5-94: ledSetPattern Test Command

### 5.13.6 setLedBlinkColor

**Test Command Description:**

This test case sets the specified blink color in the specified LED. The input is received from the user. The setLedBlinkColor test case output will be displayed as shown in Figure 5-95.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client setLedBlinkColor blue
BIST TEST RESULT: setLedBlinkColor: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client setLedBlinkColor red
BIST TEST RESULT: setLedBlinkColor: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client setLedBlinkColor green
BIST TEST RESULT: setLedBlinkColor: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client setLedBlinkColor white
BIST TEST RESULT: setLedBlinkColor: PASSED
```

Figure 5-95: setLedBlinkColor Test Command

### 5.13.7 setLedBlinkRate

**Test Command Description:**

This test case sets all LEDs to blink with specified blink rate. The setLedBlinkRate test case output will be displayed as shown in Figure 5-96.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client setLedBlinkRate 1
BIST TEST RESULT: setLedBlinkRate: PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client setLedBlinkRate 3
BIST TEST RESULT: setLedBlinkRate: PASSED
```

Figure 5-96: setLedBlinkRate Test Command

### 5.13.8 ledSetLuminosity

**Test Command Description:**

This test case sets all LEDs luminosity with different percentage (100,50,10). The luminosity input is received from the user. The ledSetLuminosity test case output will be displayed as shown in Figure 5-97.

**Test Pre-requisites:** Remove WAN connection (SFP or Ethernet) in RG before running the test in normal mode

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led1 100
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led1 50
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led1 10
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led2 100
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led2 50
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led2 10
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led3 100
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led3 50
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led3 10
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led4 100
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led4 50
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity service_led4 10
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity wps_led1 100
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity wps_led1 50
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity wps_led1 10
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity wps_led2 100
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity wps_led2 50
ledSetLuminosity:PASSED
labuser@labuser-OptiPlex-380:/bin$ sudo ./bist_client ledSetLuminosity wps_led2 10
ledSetLuminosity:PASSED
```

Figure 5-97: ledSetLuminosity Test Command

## 5.14 TILT Test Command

### 5.14.1 TiltGetAngles

**Test Command Description:**

This test case displays the X, Y and Z axis of RG. The test TiltGetAngles will be executed and the result will be displayed as shown in Figure 5-98.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
root@ATlab05:/bin# bist_client TiltGetAngles
Testing Tilt to get angles:

Tilt Angles[degrees] : X[1] Y[90] Z[91]

AngleTransitionToVertical:0 degrees
AngleTransitionToHorizontal:0 degrees
BIST TEST RESULT: TiltGetAngles: PASSED
root@ATlab05:/bin#
```

Figure 5-98: TiltGetAngles Command

### 5.14.2 TiltGetOrientation

**Test Command Description:**

This test case displays the RG orientation. The TiltGetOrientation test will be executed and the result will be displayed as shown in Figure 5-99.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**

```
root@ATlab05:/bin# bist_client TiltGetOrientation
Testing Tilt to get orientation:

Orientation:Horizontal Right
BIST TEST RESULT: TiltGetOrientation: PASSED
```

Figure 5-99: TiltGetOrientation Command

### 5.14.3 Run all TILT tests

**Test Command Description:**

This test is used to run all TILT test cases. Enter subtest case number as "3" " in in the Normal Mode and "3" in the Special Mode in Ubuntu Linux Host. All TILT tests will be run, and the result will be displayed as shown in Figure 4-143.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode and Normal Mode

**Test Screenshot:**



```
Please Enter Test to Execute:3
+-----+
|                               TILT SENSOR TEST                               |
+-----+
Testing Tilt to get angles:

Tilt Angles[degrees] : X[1] Y[91] Z[91]

AngleTransitionToVertical:0 degrees
AngleTransitionToHorizontal:255 degrees
BIST TEST RESULT: TiltGetAngles:PASSED
+-----+
Testing Tilt to get orientation:

Orientation:Horizontal Right
BIST TEST RESULT: TiltGetOrientation:PASSED
+-----+
=====
                        BIST TEST REPORT
=====
TiltGetAngles                                     : PASSED
TiltGetOrientation                               : PASSED
+-----+
|                               DISPLAYING SUMMARY OF EXECUTION                               |
+-----+
Total Number of Test cases executed :2
Test cases passed                    :2
Test cases InProgress                :0
Test cases failed                    :0
Not supported test cases              :0

See complete summary in /tmp/bist/summary.txt
+-----+
```

Figure 4-143: Run all Tilt test commands

## 5.15 CELLULAR TEST Command

**Test Command Description:** This test is used to check the functionalities of Cellular test commands. Enter Cellular test case number as "18" in the Ubuntu Linux Host. and it will display sub menu for Cellular tests as in Figure 4-144

**Test Pre-requisites:** NA

**Test Screenshot:**



| CELLULAR TEST |                          |    |                          |
|---------------|--------------------------|----|--------------------------|
| 1             | cellularDeviceInfo       | 10 | cellularReboot           |
| 2             | cellularSecMode          | 11 | cellularGetOpMode        |
| 3             | cellularSetUsbState      | 12 | cellularGetSIMStatus     |
| 4             | cellularGetQCNVersion    | 13 | cellularGetDeviceLog     |
| 5             | cellularChkCalData       | 14 | cellularDeleteMSISDNMBDN |
| 6             | cellularGetThermalStatus | 15 | cellularResetFactory     |
| 7             | cellularGetCpuUsage      | 16 | cellularSIMTestMode      |
| 8             | cellularGetMemoryUsage   | 17 | cellularReseteSIMProfile |
| 9             | cellularGetBootStatus    | 18 | cellularFlashUpdate      |
| 0             | Return to main menu      | 19 | Run all Test             |

Figure 4-144: cellular commands

### 5.15.1 CellularDeviceInfo

#### Test Command Description:

This test command is used to get the Cellular device Info information such as Model, Software version, serial number and device status. Enter the subtest case number as "1" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-145

Test Pre-requisites: NA

Test Mode: Normal Mode

#### Test Screenshot:

```
# bist_client cellularDeviceInfo

CELLULAR DEVICE INFO:
*****
MODEL: IMQC
SW VER: 12.00232.033.1
DEVICE STATUS:ONLINE

BIST TEST RESULT: cellularDeviceInfo:PASSED
```

Figure 4-145: cellularDeviceInfo



## 5.15.2 cellularSecMode

### Test Command Description:

. Enter the subtest case number as "2" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-146

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
# bist_client cellularSecMode

Securemode:1:SECURE MODE

BIST TEST RESULT: cellularSecMode:PASSED
```

Figure 4-146: cellularSecMode

## 5.15.3 cellularSetUsbState

### Test Command Description:

This command is used to ON or OFF USB state.

Enter the subtest case number as "3" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-148

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
BIST TEST RESULT: cellularSecMode: PASSED
+-----+
|          CELLULAR TEST          |
+-----+
| 1 | cellularDeviceInfo | 10 | cellularReboot |
+-----+
| 2 | cellularSecMode   | 11 | cellularGetOpMode |
+-----+
| 3 | cellularSetUsbState | 12 | cellularGetSIMStatus |
+-----+
| 4 | cellularGetQCNVersion | 13 | cellularGetDeviceLog |
+-----+
| 5 | cellularChkCalData  | 14 | cellularDeleteMSISDNMBDN |
+-----+
| 6 | cellularGetThermalStatus | 15 | cellularResetFactory |
+-----+
| 7 | cellularGetCpuUsage  | 16 | cellularSIMTestMode |
+-----+
| 8 | cellularGetMemoryUsage | 17 | cellularReseteSIMProfile |
+-----+
| 9 | cellularGetBootStatus | 18 | cellularFlashUpdate |
+-----+
| 0 | Return to main menu  | 19 | Run all Test |
+-----+
Please Enter Test to Execute:3
Enter the state (1 - Enable & 0 - Disable) : 1

Cellular USB ENABLE

BIST TEST RESULT: cellularSetUsbState: PASSED
```



Figure 4-147: cellularSetUsbState

### 5.15.4 cellularGetQCNVersion

**Test Command Description:**

Enter the subtest case number as "4" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-148

**Test Pre-requisites:** NA**Test Mode:** Normal Mode**Test Screenshot:**

```
# bist_client cellularGetQCNVersion
qcn VER:IMQC_lab2_v12.05.221841

:Qcnversion:IMQC_lab2_v12.05.221841

BIST TEST RESULT: cellularGetQCNVersion:PASSED
```

Figure 4-148: cellularGetQCNVersion

### 5.15.5 cellularChkCalData

**Test Command Description:**

calibration Enter the subtest case number as "5" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-149

**Test Pre-requisites:** NA**Test Mode:** Normal Mode**Test Screenshot:**

```
# bist_client cellularChkCalData

CALIBRATION DATA IS PRESENT

BIST TEST RESULT: cellularChkCalData:PASSED
```

Figure 4-149: cellularChkCalData

### 5.15.6 cellularGetThermalStatus

**Test Command Description:**



Enter the subtest case number as "6" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-450

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
# bist_client cellularGetThermalStatus
Get the thermal Status...

CPU : 36
PA1 : 36
PA2 : 35
MODEM : 37

BIST TEST RESULT: cellularGetThermalStatus: PASSED
```

Figure 4-150: cellularGetThermalStatus

### 5.15.7 cellularGetCpuUsage

**Test Command Description:**

peak, avg Enter the subtest case number as "7" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-152

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
# bist_client cellularGetCpuUsage
CPU USAGE:
*****
Sys  Usage: 9%
Idle Usage: 91%
Peak Usage: 17%
Avg  Usage: 2%
Avg  Load : 2%

BIST TEST RESULT: cellularGetCpuUsage: PASSED
```

Figure 4-151: cellularGetCpuUsage



## 5.15.8 cellularGetMemoryUsage

### **Test Command Description:**

This command is used to get the memory usage in the modem. It displays total, free and cache size. Enter the subtest case number as "8" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-153

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
# bist_client cellularGetMemoryUsage
MEMORY USAGE
*****
Total Memory: 180368 KB
Free Memory: 18100 KB
Cache Memory: 56272 KB

BIST TEST RESULT: cellularGetMemoryUsage: PASSED
```

Figure 4-153: cellularGetMemoryUsage

## 5.15.9 cellularGetBootStatus

### **Test Command Description:**

. Enter the subtest case number as "9" in Normal Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-154

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**



```
# bist_client cellularGetBootStatus

HAL_CELLULAR_GetBootStatus
Modem status:ONLINE

BOOT STATUS:ONLINE

BIST TEST RESULT: cellularGetBootStatus:PASSED
```

Figure 4-154: cellularGetBootStatus

### 5.15.10 cellularReboot

**Test Command Description:**

update. Enter the subtest case number as "10" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-154.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**

```
|          CELLULAR TEST          |
+-----+-----+-----+-----+
| 1 | cellularDeviceInfo           | 10 | cellularReboot           |
+-----+-----+-----+-----+
| 2 | cellularSecMode              | 11 | cellularGetOpMode         |
+-----+-----+-----+-----+
| 3 | cellularSetUsbState           | 12 | cellularGetSIMStatus      |
+-----+-----+-----+-----+
| 4 | cellularGetQCNVersion          | 13 | cellularGetDeviceLog      |
+-----+-----+-----+-----+
| 5 | cellularChkCalData             | 14 | cellularDeleteMSISDNMBDN  |
+-----+-----+-----+-----+
| 6 | cellularGetThermalStatus        | 15 | cellularResetFactory      |
+-----+-----+-----+-----+
| 7 | cellularGetCpuUsage            | 16 | cellularSIMTestMode       |
+-----+-----+-----+-----+
| 8 | cellularGetMemoryUsage         | 17 | cellularReseteSIMProfile   |
+-----+-----+-----+-----+
| 9 | cellularGetBootStatus          | 18 | cellularFlashUpdate       |
+-----+-----+-----+-----+
| 0 | Return to main menu            | 19 | Run all Test              |
+-----+-----+-----+-----+

Please Enter Test to Execute:10
Enter in how many seconds you want to reboot : 1

Reboot after 1 seconds...

BIST TEST RESULT: cellularReboot:PASSED
```



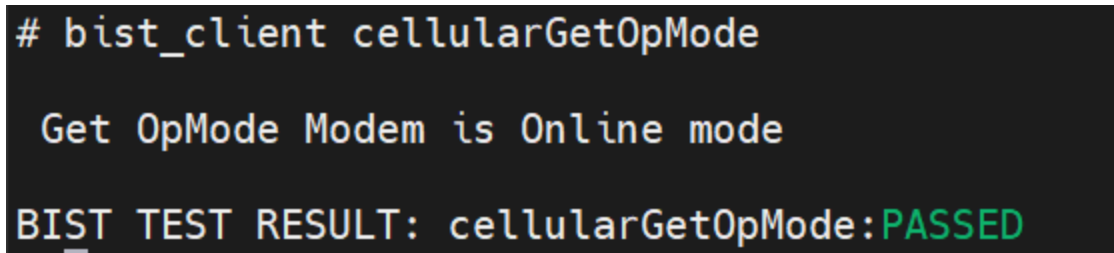
---

**Figure 4-155: cellularReboot**

### 5.15.11 cellularGetOpMode

**Test Command Description:**

get the Operating Mode. Enter the subtest case number as "11" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-156.

**Test Pre-requisites:** NA**Test Mode:** Normal Mode**Test Screenshot:**

```
# bist_client cellularGetOpMode

Get OpMode Modem is Online mode

BIST TEST RESULT: cellularGetOpMode: PASSED
```

**Figure 4-156: cellularGetOpMode**

### 5.15.12 cellularGetSIMStatus

**Test Command Description:**

This command is used to get the SIM status.

Enter the subtest case number as "12" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-157.

**Test Pre-requisites:** NA**Test Mode:** Normal Mode**Test Screenshot:**



```
# bist_client cellularGetSIMStatus

SIM Status 0

eSIM is Present

BIST TEST RESULT: cellularGetSIMStatus: PASSED
```

Figure 4-157: cellularGetSIMStatus

### 5.15.13 cellularGetDeviceLog

**Test Command Description:**

get device logs. Enter the subtest case number as "13" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-158.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

**Test Screenshot:**

```
# bist_client cellularGetDeviceLog
device logs:nc -w 5 203.0.113.2 58440 > /tmp/log.tar.gz

BIST TEST RESULT: cellularGetDeviceLog: PASSED
```

Figure 4-158: cellularGetDeviceLog

### 5.15.14 cellularGetMSISDNMBDN

**Test Command Description:**

delete the MSISDN & MBDN. Enter the subtest case number as "14" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-159.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                     CELLULAR TEST                                     |
+-----+
| 1 | cellularDeviceInfo               | 11 | cellularReboot                |
+-----+
| 2 | cellularSecMode                 | 12 | cellularGetOpMode             |
+-----+
| 3 | cellularSetUsbState              | 13 | cellularGetSIMStatus          |
+-----+
| 4 | cellularGetQCNVersion            | 14 | cellularGetDeviceLog          |
+-----+
| 5 | cellularChkCalData               | 15 | cellularGetMSISDNMBDN         |
+-----+
| 6 | cellularGetThermalStatus         | 16 | cellularResetFactory          |
+-----+
| 7 | cellularGetCpuUsage              | 17 | cellularSIMTestMode           |
+-----+
| 8 | cellularGetMemoryUsage           | 18 | cellularReseteSIMProfile      |
+-----+
| 9 | cellularGetBootStatus            | 19 | cellularFlashUpdate           |
+-----+
| 10 | cellularGetICCID                | 20 | Run all Test                  |
+-----+
| 0 | Return to main menu              |
+-----+

Please Enter Test to Execute:15

voice_number = 2
mobile_id_number_valid = 0
mobile_id_number = 
imsi_valid = 247
imsi = 

BIST TEST RESULT: cellularDeleteMSISDNMBDN:PASSED
+-----+
```

Figure 4-159: cellularGetMSISDNMBDN

### 5.15.15 cellularResetFactory

**Test Command Description:**

do factory reset of 5g module. Enter the subtest case number as "15" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-160.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



```
+-----+
|                                     |
|                   CELLULAR TEST   |
|-----+-----+
| 1 | cellularDeviceInfo             | 10 | cellularReboot             |
|-----+-----+
| 2 | cellularSecMode               | 11 | cellularGetOpMode           |
|-----+-----+
| 3 | cellularSetUsbState           | 12 | cellularGetSIMStatus        |
|-----+-----+
| 4 | cellularGetQCVersion          | 13 | cellularGetDeviceLog        |
|-----+-----+
| 5 | cellularChkCalData            | 14 | cellularDeleteMSISDNMBDN    |
|-----+-----+
| 6 | cellularGetThermalStatus       | 15 | cellularResetFactory        |
|-----+-----+
| 7 | cellularGetCpuUsage           | 16 | cellularSIMTestMode         |
|-----+-----+
| 8 | cellularGetMemoryUsage        | 17 | cellularReseteSIMProfile    |
|-----+-----+
| 9 | cellularGetBootStatus         | 18 | cellularFlashUpdate         |
|-----+-----+
| 0 | Return to main menu           | 19 | Run all Test                |
|-----+-----+
Please Enter Test to Execute:15
Enter the ResetState (1 - Reset & 0 - Do Not Reset) : 0

BIST TEST RESULT: cellularResetFactory: PASSED
+-----+
|
```

Figure 4-160: cellularResetFactory

### 5.15.16 cellularSIMTestMode

**Test Command Description:**

enable or disable the eSIM Test MODE.

Disable Test mode - Operation profile will be enabled if it exists on eSIM, otherwise provisioning profile will be enabled.

Enable Test mode - Test profile profile will be used.. Enter the subtest case number as "16" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-161.

**Test Pre-requisites:** NA

**Test Mode:** Special Mode

**Test Screenshot:**



### 5.15.17 cellularResetSIMProfile

reset the eUICC. Removes the operational profile (not a provisioning/test profiles). Enter the subtest case number as "17" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-162.

**Test Mode:** Special Mode

October 14, 2022AT&T Proprietary (Internal Use Only).Page 225  
Not for use or disclosure outside the AT&T companies except under written agreement.



|                                                    |                          |    |                          |
|----------------------------------------------------|--------------------------|----|--------------------------|
| CELLULAR TEST                                      |                          |    |                          |
| 1                                                  | cellularDeviceInfo       | 10 | cellularReboot           |
| 2                                                  | cellularSecMode          | 11 | cellularGetOpMode        |
| 3                                                  | cellularSetUsbState      | 12 | cellularGetSIMStatus     |
| 4                                                  | cellularGetQCVersion     | 13 | cellularGetDeviceLog     |
| 5                                                  | cellularChkCalData       | 14 | cellularDeleteMSISDNMBDN |
| 6                                                  | cellularGetThermalStatus | 15 | cellularResetFactory     |
| 7                                                  | cellularGetCpuUsage      | 16 | cellularSIMTestMode      |
| 8                                                  | cellularGetMemoryUsage   | 17 | cellularReseteSIMProfile |
| 9                                                  | cellularGetBootStatus    | 18 | cellularFlashUpdate      |
| 0                                                  | Return to main menu      | 19 | Run all Test             |
| Please Enter Test to Execute:17                    |                          |    |                          |
| BIST TEST RESULT: cellularReseteSIMProfile: PASSED |                          |    |                          |

Figure 4-162: cellularResetSIMProfile

### 5.15.18 cellularFlashUpdate

**Test Command Description:**

update. Enter the subtest case number as "18" in Special Mode. The Cellular device Info test will be executed, and the result will be displayed as shown in Figure 4-163

**Test Pre-requisites:** NA**Test Mode:** Special Mode**Test Screenshot:**



```
#####
CAUTION : This test case will around approx 4 to 5 mins
After this test case you are not able of run other cellular test cases
#####

Do you want to continue this test?[yes - continue, no - quit]:
yes
Enter the FW path      : /data/5g/download/5g_image_active.zip,
Enter the Signature Path : /data/5g/download/5g_image_active_sign
Firmware Updating...

Waiting to switch to recovery mode
Upgrade Initiated Successfully
Waiting for the upgrade status to be completed...
.....
Cellular FW upgrade is completed with status:3, progress:100%
NOTE: Reboot the RG to reflect the new 5G FW version

BIST TEST RESULT: cellularFlashUpdate:PASSED
+-----+
```

Figure 4-163: cellularFlashUpdate

### 5.15.19 cellularStartCollectQXDMLog

#### Test Command Description:

start collecting qxdm logs. Enter the subtest case number as "12" in Normal Mode. The cellularStartCollectQXDMLog test will be executed, and the result will be displayed as shown in Figure 4-164

**Test Pre-requisites:** USB disk should be Formatted in NTFS format

**Test Mode:** Normal Mode

#### Test Screenshot:

```
# ./bist_client cellularStartCollectQXDMLog 0 /share
DPI_CELLULAR_CMD_StartCollectQxdmLog
size: 0 storepath: /share
HAL_CELLULAR_StartcollectQXDMLog size: 0, store_path: /share, mask_path: (null)<eom>
Only one USB mass storage device detected

FS test for NTFS passed for the device /dev/sda1
usb storage is present. Count: 1
Starting RPC Bind
Starting NFSD
rpc.mountd: Version 2.5.2 starting
Starting QXDM Logs

BIST TEST RESULT: cellularStartCollectQXDMLog:PASSED
```

Figure 4-164: cellularstartcollectQXDMLog



## 5.15.20 cellularStopCollectQXDMLog

### **Test Command Description:**

stop collecting qxdm logs. Enter the subtest case number as "13" in Normal Mode. The cellularStopCollectQXDMLog test will be executed, and the result will be displayed as shown in Figure 4-165

### **Test Pre-requisites:** NA

### **Test Mode:** Normal Mode

### **Test Screenshot:**

```
# ./bist_client cellularStopCollectQXDMLog
DPI_CELLULAR_CMD_StopCollectQxdmLog
HAL_CELLULAR_StopcollectQXDMLog
Stopping QXDM Logs
Stopping NFSD
rpc.mountd: Caught signal 15, un-registering and exiting.
Stopping RPC Bind
rpcbind stop ret:15

BIST TEST RESULT: cellularStopCollectQXDMLog: PASSED
```

Figure 4-165: cellularstopcollectQxdmlog

## 5.16 FAN TEST Command

**Test Command Description:** This test is used to check the functionalities of Fan Test. Enter Fan test case number as "19" in the Normal mode of Ubuntu Linux Host. and it will display sub menu for Fan Test as in Figure 4-14

### **Test Pre-requisites:** NA

### **Test Screenshot:**

### 5.16.1 FanGetStatus

#### **Test Command Description:**

get the Fan Status as Disabled(0),Enabled(1),Fan enabled and not functioning(2),fan operating(3),fan state failed(4). Enter the subtest case number as "1" in Normal Mode. The all Fan Get Status test will be executed, and the result will be displayed as shown in Figure-4-164.

#### **Test Pre-requisites:** NA

#### **Test Mode:** Normal Mode

```
# bist_client fanGetStatus
Testing Fan get Status

FAN is Supported
The Status is : 3
Fan Status = 3

BIST TEST RESULT: fanGetStatus: PASSED
#
```



### 5.16.2 FanSetState

**Test Command Description:**

set the Fan Status as Disabled(Off), Enabled(ON).Enter the subtest case number as "2" in Normal Mode. The all Fan Set Status test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

```
# bist_client fanSetState on
Testing Fan Set State Test
WNC fan control enabled

BIST TEST RESULT: fanSetState:PASSED
#
```

### 5.16.3 fanGetMaxSpeed

**Test Command Description:**

Get the fan Max speed. Enter the subtest case number as "3" in Normal Mode. The all Fan Get Max Speed test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

```
# bist_client fanGetMaxSpeed
Testing Fan Speed Get Test

The Fan Max Speed is : 7000
fanGetMaxSpeed:7000 (in RPM)

BIST TEST RESULT: fanGetMaxSpeed:PASSED
#
```

### 5.16.4 fanGetSpeed

**Test Command Description:**

Get the fan speed. Enter the subtest case number as "4" in Normal Mode. The all Fan Get Speed test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode



```
# bist_client fanGetSpeed
Testing Fan Speed Get Test
Current Speed of the Fan is Speed : 4000
FanGetSpeed:4000 (in RPM)

BIST TEST RESULT: fanGetSpeed:PASSED
#
```

### 5.16.5 fanSetSpeed

**Test Command Description:**

set the fan speed from 0,1000,4000,5000,6000,7000. Enter the subtest case number as "5" in Normal Mode. The all Fan Set Speed test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

```
# bist_client fanSetSpeed 4000
Testing Fan Speed Set test
WNC fan control change rpm 4000

BIST TEST RESULT: fanSetSpeed:PASSED
#
```

### 5.16.6 fanGetPWM

**Test Command Description:**

Get the PWM for different speeds and it will show value from 0 to 126. Enter the subtest case number as "6" in Normal Mode. The all Fan Get PWM test will be executed, and the result will be displayed as shown in Figure-4-164.

**Test Pre-requisites:** NA

**Test Mode:** Normal Mode

```
# bist_client fanGetPWM
Testing Fan PWM Get Test
Fan PWM :52

BIST TEST RESULT: fanGetPWM:PASSED
#
```



## 5.16.7 SetAutomaticControl

### Test Command Description:

Set the Automatic Control to disable (0) and Enable (1). Enter the subtest case number as "7" in Normal Mode. The all Fan Set Automatic Control test will be executed, and the result will be displayed as shown in Figure-4-164.

Test Pre-requisites: NA

Test Mode: Normal Mode

```
# bist_client fanSetAutoControl 1
Testing Fan Set Automatic control enable = 1
WNC fan auto control enabled
Set Automatic Control successfully Executed
■
BIST TEST RESULT: fanSetAutoControl:PASSED
```

## 5.16.8 GetAutomaticControl

### Test Command Description:

Get the Automatic Control as disable (0) or Enabled (1). Enter the subtest case number as "8" in Normal Mode. The all Fan Set Automatic Control test will be executed, and the result will be displayed as shown in Figure-4-164.

Test Pre-requisites: NA

Test Mode: Normal Mode

```
# bist_client fanGetAutoControl
The Fan Automatic Control is : ENABLED
Fan Get Automatic control enablefanGetAutoControl:1
BIST TEST RESULT: fanGetAutoControl:PASSED
#
#
```