

Summary of Root Causes Resolved

1. **2.4 GHz Wi-Fi Deafness & 5.8 GHz Authentication Failure (send h2c pkt fail!!):**
 - Your retail 0bda:c820 RTL8821CU adapter uses Cut-D silicon (EFUSE 0xCA = 0x22) with its 2.4 GHz factory TX calibration stored in the Path B (BTG) EFUSE block (0x3A–0x45) while Path A (0x10–0x1A) is unprogrammed (0xFF).
 - Replacing dArkoSen's 2018 8821cu.ko (v5.4.1) with **8821cu.ko (v5.12.0.4)** and mirroring the 0x3A–0x45 2.4 GHz EFUSE calibration into 0x10–0x1B restored full 2.4 GHz and 5.8 GHz Wi-Fi.
2. **Bluetooth Controller Deadlock (hci0 DOWN / 00:00:00:00:00:00):**
 - dArkoSen shipped Rockchip's rtk_btusb.ko compiled with #define CONFIG_BLUEDROID 1 (an Android /dev/rtk_btusb driver) colliding with mainline btusb.ko.
 - Rebuilding rtk_btusb.ko in native 64-bit Linux BlueZ mode (CONFIG_BLUEDROID = 0) with Linux 4.4 hci_recv_fragment() packet reassembly, 0x200b/0x200c status=0x0c masking, and the updated 54,636-byte rtl8821c_fw.bin (0x75b8 / 0xf098) firmware (while removing the broken 10-byte rtl8821c_config.bin 0x00d9 = 0x0f override) brought hci0 up cleanly.
3. **Wi-Fi Driver Disabling Bluetooth RF (gnt_bt=0 in halbtc8821cwifionly.c & halbtc8821c1ant.c):**
 - In 8821cu.ko, ex_hal8821c_wifi_only_hw_config() was writing 0x1704 = 0x7700 (gnt_wl=1, gnt_bt=0) and halbtc8821c1ant.c was setting bt_disabled = TRUE (BTC_GNT_SET_SW_LOW), physically cutting off Bluetooth TX/RX in silicon. Unlocking GNT_BT and forcing 1-Antenna BT-Coexistence (EEPROMBluetoothCoexist = _TRUE, Ant_x1) enabled full simultaneous Wi-Fi and Bluetooth operation.
4. **BLE Mouse SMP Security & PulseAudio A2DP Registration:**
 - Compiling and loading cmac.ko and ecb.ko enabled Linux kernel BLE Security Manager Protocol (SMP), and starting pulseaudio.service with module-bluetooth-discover after bluetooth.service registered the Audio Sink (0000110b) profile.