Operation Description

RF signal flow

The each RF function doesn't transmit simultaneously of this device

Power Supply

Power from battery is supplied to PMIC (U2) which power MCU and BLE (U1) circuit via VDD_MCU_1V95, power WiFi chip (U5) through VBUCK2_3V3, power GNSS chip (U7) via VDD_GNSS_1V8. WAN module (U10) is powered via battery directly.

RF Frequency Oscillator

The crystal oscillator circuit for MCU and BLE is Y2 (32 MHz); for WiFi chip is Y3 (40 MHz) and for GNSS is Y5 (26 MHz).

Operating frequency range：BLE:2402~2480 MHz; WiFi: 2412~2472 MHz; WAN: 699MHz~746MHz, 1850MHz~1990MHz, 1710MHz~2155MHz

Modulation：BPSK, QPSK, QAM

Supported channels：BLE: 0~39; WiFi: 1~13

Max. tune-up power with tolerance BPSK：13 +1.0dBm/-2.0dBm; QPSK: 23 +1.0dBm/-2.0dBm; QAM 22 +/-1.0dBm

Antenna type: PIFA antenna

Antenna gain：see measured data sent earlier

Crystal frequency：40 MHz and 32MHz and 26 MHz

Antenna Matching Circuit

WiFi/BLE: Signal from RF circuitry is transmitted through the matching circuit C104/C101 via connector J3 to antenna.
GNSS: Signal from RF circuitry is through the matching circuit C106/L10 via connector J4 to antenna.
WAN: Signal from RF circuitry is transmitted through the matching circuit L11/C112/C119 via connector J5 to antenna

Charging Circuit

Charging circuit is located within the removable battery. Power delivered via micro-USB to charging IC (U2) on the battery PCB. U2 is responsible for charging the battery.

Audio Power Amplifier Circuit

No audio amplifier circuit.