

# Description of Operation

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EUT is a Wireless digital Audio player with 11 channels(2412MHz~2462MHz, Space 5MHz). It allows you to connect to other WLAN device.

## General Operational Description:

### 1. Time base of the transmission frequency:

For IF and RF frequency, Crystal is a clock reference.

### 2. Synthesizer:

Synthesizer inside Transceiver IC and operate frequency in 2.4GHz ISM Band. Internal voltage controlled oscillator (VCO) provides the desired LO signal base on the phase-locked loop (PLL) with a relatively wide tuning range for this application.

### 3. Transmission:

BBP IC has DSSS (BPSK/QPSK/CCK) and OFDM (BPSK/QPSK/16QAM/64QAM) modulation function, it provides transmission data rate are 1, 2, 5.5, 11 Mbps on DSSS and 6, 12, 18, 24, 36, 48, 54 Mbps on OFDM. Digital data signal will be converted to analog (TX IQ) signals through DAC in BBP IC, TX IQ pass through to low pass filter. TX I/Q signal use direct conversion (zero-IF) architecture converter to generate carrier frequency signal. Transceiver IC and external PA magnify output power.

### 4. Receiver:

Reverse direction isolation of LNA inside Transceiver IC suppresses unwanted radiation. Then 2.4GHz RF signal will be directly down to IF signal (RX IQ) and high frequency spurious emissions are suppressed by LPF. At last RX IQ signal will be demodulated digital data.

### 5. Base band Processing:

Channel Selection: Channel selection is controlled by BBP IC.

Data Modulation: DSSS (BPSK/QPSK/CCK) and OFDM (BPSK/QPSK/16QAM/64QAM) modulation type is controlled by BBP IC.

Power Control Level: BBP IC has the power leveling loop table are calibrated by manufacturer, then uses closed-loop power control function to limit RF output power level. Power leveling step accuracy is  $\pm 0.5\text{dB}$ .

Transmit/Receive Switch: EUT has Transmit/Receive Switch and Antenna switch

Data Link Layer:

Firmware implements the full IEEE 802.11 Wireless LAN MAC protocol. It supports BSS and IBSS operation under DCF, and operation under the optional Point Coordination Function (PCF). Lower level protocol functions such as RTS/CTS generation and acknowledgment, fragmentation and de-fragmentation, and automatic beacon monitoring are handled without host intervention. Active scanning is performed autonomously once initiated by host command. Host interface command and status handshakes allow concurrent operations from multi-threaded I/O drivers.

### 6. Power: 5VDC from adapter. This power is provided to regulator components to regulated DC power.

## Features of Equipment under Test

Items	Description
Type of Modulation	DSSS (CCK / DQPSK / DBPSK) OFDM (16QAM / 64QAM / DQPSK / DBPSK )
Number of Channels	11
Frequency Band	2400.0 MHz ~ 2483.5 MHz
Carrier Frequency Range	2412.0 MHz ~ 2462.0 MHz
Data Rate	1, 2, 5.5, 11 Mbps - DSSS 6, 12, 18, 24, 36, 48, 54 Mbps - OFDM
Max. Conducted Output Power	DSSS : 13.82 dBm OFDM : 18.44dBm
Antenna Type	PCB Antenna / 4.0dBi
Communication Type	Half-Duplex
Testing Duty Cycle	75.00%
Power Rating (DC/AC, Voltage)	5VDC from adapter
Test Power Source	120.00V AC
Temperature Range (Operating)	-20 ~ 55 °C