

Operational Description

Vigor2765 / Vigor2766 / Vigor2135 series are Router with Wireless LAN (WLAN) function. Both Wired and Wireless device can connected to this router and interconnect to the Internet through the WAN port.

2.4GHz WLAN:

The 2.4G WLAN operates in the 2.4GHz band (2412MHz~2462MHz) and complies to IEEE802.11b/g/n/ax standard. It supports two transmitters and two receivers mode. Security mode 64/128 bit WEP, WFA WPA/WPA2 personal.

2.4G WLAN chip WAVE654 provides the baseband and RF transceiver function.

Time base of the transmission frequency:

A 40MHz crystal is used as reference for generating the Intermediate and RF frequency.

Synthesizer:

An internal voltage controlled oscillator (VCO) provides the desired LO signal base on the phase-locked loop (PLL) .

Transmitter:

The Base-band Processing (BBP) section on the WLAN chip contains DSSS (BPSK/QPSK/CCK) and OFDM (BPSK/QPSK/16QAM/64QAM/256/1024QAM) modulation function and transmission data rate are 1, 2, 5.5, 11 Mbps on DSSS and 6, 12, 18, 24, 36, 48, 54, 108, 150, 300, 573 Mbps on OFDM. The transceiver generate the RF signal and feed to the antenna.

Max Transmit power (max average power + tolerance):

802.11b: 26.73 dBm

802.11g: 29.05 dBm

802.11ax (HE20): 29.28 dBm

802.11ax (HE40): 29.20 dBm

Receiver:

Received signal from antenna goes through internal LNA on WLAN chip and down convert to IF signal (RX IQ) and eventually demodulated to digital data . High frequency spurious emissions are suppressed by LPF.

Base band Processing:

1. Channel Selection: Channel selection is controlled by BBP in the WLAN chip.

Data Modulation: DSSS (BPSK/QPSK/CCK) and OFDM

(BPSK/QPSK/16/64/256/1024QAM) modulation type is controlled by BBP.

2. Transmit Power Level control: A closed-loop power controlling function is implemented in the WLAN chip. The transmit power is calibrated to the designated level during manufacturing process. End user can not change the transmit power level.

5GHz WLAN :

The 5G WLAN operates in the 5GHz band (5180-5240Mhz, 5745-5825MHz) and complies to IEEE802.11a/n/ac/ax standard. It supports two transmitters and two receivers mode. Security mode 64/128 bit WEP, WFA WPA/WPA2 personal.

5GHz WLAN chip WAVE654 provides the baseband and RF transceiver function. A 40MHz crystal provide the reference for internal frequency generation. The device provided eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps for IEEE 802.11a, eight kinds of transmitting speed MCS0 – MCS7 for IEEE 802.11n, MCS0 – MCS8 for IEEE 802.11ac 20MHz, MCS0 – MCS9 for IEEE 802.11ac 40MHz, and MCS0 – MCS9 for IEEE 802.11ac 80MHz. MCS0 – MCS11 for IEEE 802.11ax 20/40/80MHz. The device of RF carrier half-duplex OFDM, and CCK. Operation in 5GHz Direct Sequence Spread Spectrum (DSSS) radio transmission for IEEE 802.11a, and 5GHz. Orthogonal Frequency Division Multiplexing (OFDM) for IEEE 802.11ax/ac/n.

Cyclic-delay diversity and Explicit beam-forming are supported.

The transmit power is calibrated to the designated level during manufacturing process. End user can not change the transmit power level.

Max Transmit power (max average power + tolerance):

5180 – 5240MHz : 29.24 dBm

5745 – 5825MHz : 28.38 dBm

Antenna:

Angeei, DPD2430Z01-150W17U7S: 2.4G band gain 2.7 dBi; 5GHz band gain 2.5 dBi

Channel Selection Restriction:

2.4Ghz channel (1 to 11) and 5GHz channel (36-48, 149-165) are available for the end users' selection in USA market. End user can not select any channel beyond this range.

Power supply:

A wall-mount power supply converts the external AC power to lower voltage DC power for use by the devices onboard. The DC power is regulated before feeding to the WLAN device.