

Frequency Stability Calculation

Company: Airaya and Atheros

Operating frequency: 5255 MHz – 5325 MHz

Manufacturer (Atheros) claims maximum frequency tolerance: $\pm 18\text{ppm}$

Atheros frequency stability calculation based on 99% BW, not 26 dBc.

Calculation below is the worse case among all channel bandwidths (10MHz, 20MHz, 40MHz and 50MHz).

10 MHz BW: measured 8.55 MHz (99% BW).

Center frequency of the Channel: 5255 MHz

Lower Edge of Authorized Band: 5250 MHz

Calculated frequency between the channel edge (5255 MHz) and lower edge of the authorized band (5250 MHz): 725 kHz.

$$\text{Where, } ((8.55\text{MHz} / 2) - 5255 \text{ MHz}) - 5250 \text{ MHz} = 725 \text{ kHz}$$

Calculated maximum frequency tolerance of 18ppm: 94.59 kHz

$$\text{Where, } 5255 \text{ MHz} * 18\text{ppm} = 94.59 \text{ kHz}$$

Therefore, the frequency stability complies.