

Effect of Antenna Gain on Maximum Peak Output Power

Retlif Testing Laboratories

Customer: Wireless Manufacturing

Job Number: R-3435N

Test Sample: Wireless Bridge with 2.4GHz Spread Spectrum Transmitter

Model No.: BR1200

FCC ID #: OIA-BR1200

Findings:

EUT Operates within band of 2400-2483.5MHz

Professionally installed antenna

Fixed point to point operation

EUT uses either of two available antennas:

- a) Antenna with 16dBi gain
- b) Antenna with 25dBi gain

Reduction required on maximum power output based on antenna gain

- a) For every 3dBi above 6dBi reduce power by 1dB

Alternate procedure based on above information

- a) For every 3dBi above 6dBi the limit of 1 watt can be reduced by 1dB.

Calculations:

Antenna #1:

Gain = 16dBi

$$16 - 6 = 10$$

$$10 / 3 = 3.3\text{dB}$$

Reduce 1 watt limit by 3.3dB

New limit = 500mW (0.5Watts)

Antenna #2

Gain = 25dBi

$$25 - 6 = 19$$

$$19 / 3 = 6.3\text{dB}$$

Reduce 1 watt limit by 6.3dB

New limit = 300mW (0.3Watts)

EUT MAXIMUM PEAK OUTPUT POWER IS AT A LEVEL WHICH IS ACCEPTABLE FOR USE WITH EITHER OF THE AVAILABLE ANTENNAS

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