Datasheet

ANT-2.4-LPW-125
2.4 GHz Panel-Mount Dipole Antenna

The ANT-2.4-LPW-125 (LPW) is a panel-mount dipole antenna for Bluetooth®, ZigBee® and other 2.4 GHz ISM applications including WiFi/WLAN.

The snap-in panel mount provides for easy and secure installation and the hinged whip with 3-position detent allows for optimal antenna positioning.

Connection is made to the radio via a 125 mm long, 1.13 mm coaxial cable terminated in an MHF1/U.FL-compatible plug connector.

Features

- Performance
  - VSWR: ≤ 1.5
  - Peak Gain: 2.8 dBi
  - Efficiency: 83%
- Snap-in panel mount
  - 9.5 mm (0.37 in) diameter hole
- 93.7 mm (3.69 in) long
- Hinged with detents for straight, 45 degree and 90 degree positioning
- MHF1/U.FL-compatible plug (female socket) connector attached to 125 mm of 1.13 mm coax cable
- Omnidirectional radiation pattern

Applications

- 2.4 GHz applications
  - Bluetooth® and ZigBee®
- Single-band WiFi / WLAN
  - WiFi 4
  - 802.11b/g/n
- Smart Home networking
- Sensing and remote monitoring
- Internet of Things (IoT) devices
- Gateways

Ordering Information

Part Number	Description
ANT-2.4-LPW-125	Antenna with MHF1/U.FL-compatible connector on 125 mm (4.92 in) 1.13 mm coax cable

Available from Linx Technologies and select distributors and representatives.

Antenna Orientation - Bent 90 Degrees

The charts on the following pages represent data taken with the antenna Bent-90 degrees, as shown in Figure 2.

Figure 2. LPW Antenna, Bent 90 Degrees (Bent-90)

VSWR

Figure 3 provides the voltage standing wave ratio (VSWR) across the antenna bandwidth. VSWR describes the power reflected from the antenna back to the radio. A lower VSWR value indicates better antenna performance at a given frequency. Reflected power is also shown on the right-side vertical axis as a gauge of the percentage of transmitter power reflected back from the antenna.

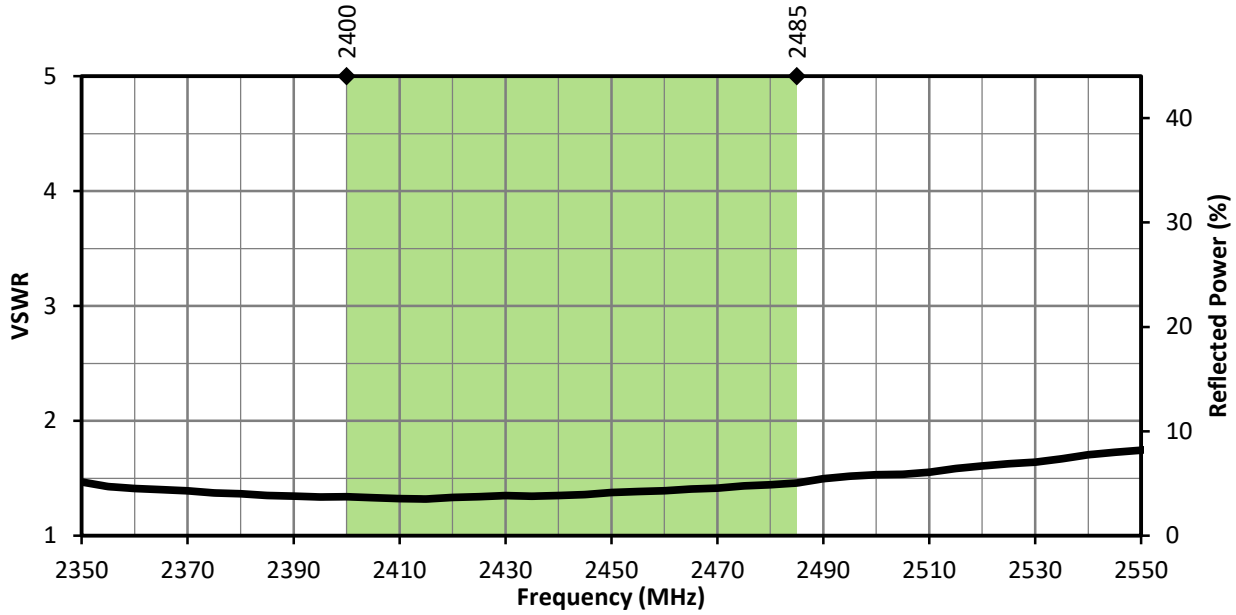


Figure 3. LPW VSWR, Bent-90

Return Loss

Return loss (Figure 4), represents the loss in power at the antenna due to reflected signals. Like VSWR, a lower return loss value indicates better antenna performance at a given frequency.

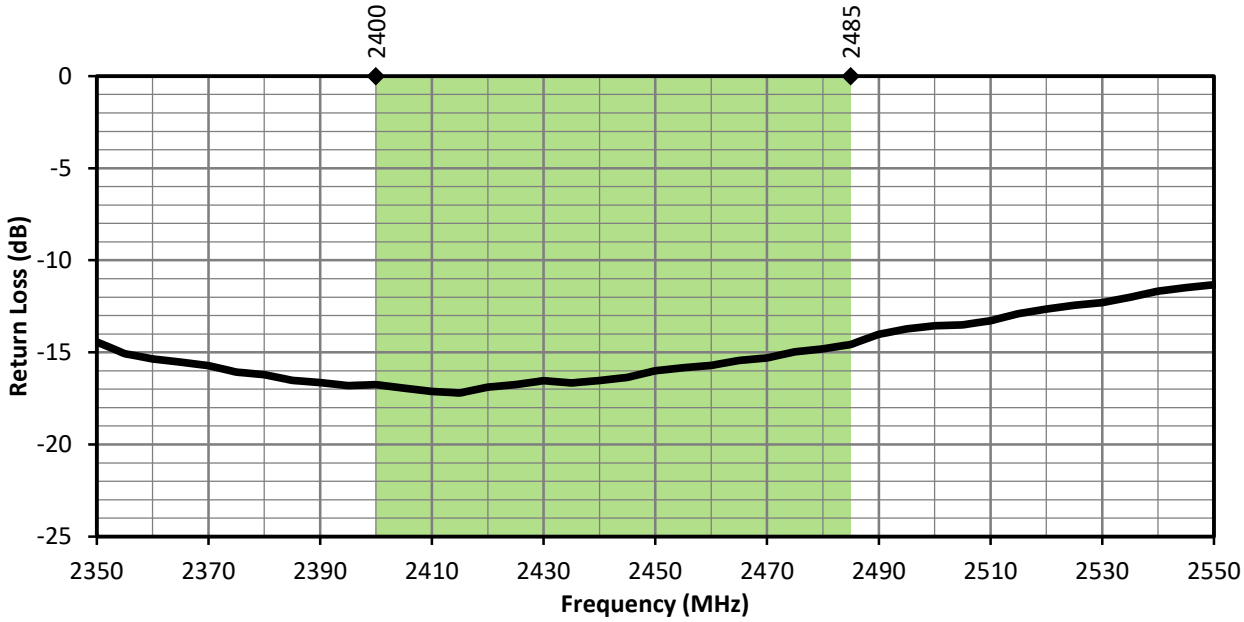


Figure 4. LPW Return Loss, Bent-90

Peak Gain

The peak gain across the antenna bandwidth is shown in Figure 5. Peak gain represents the maximum antenna input power concentration across 3-dimensional space, and therefore peak performance at a given frequency, but does not consider any directionality in the gain pattern.

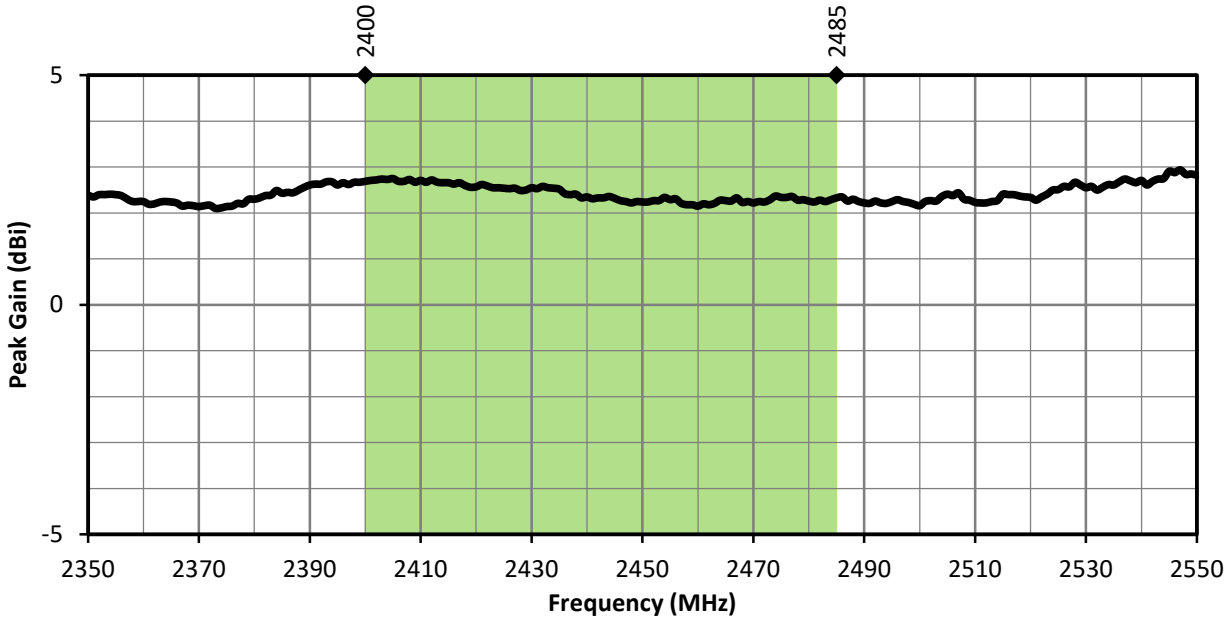


Figure 5. LPW Peak Gain, Bent-90

Average Gain

Average gain (Figure 6), is the average of all antenna gain in 3-dimensional space at each frequency, providing an indication of overall performance without expressing antenna directionality.

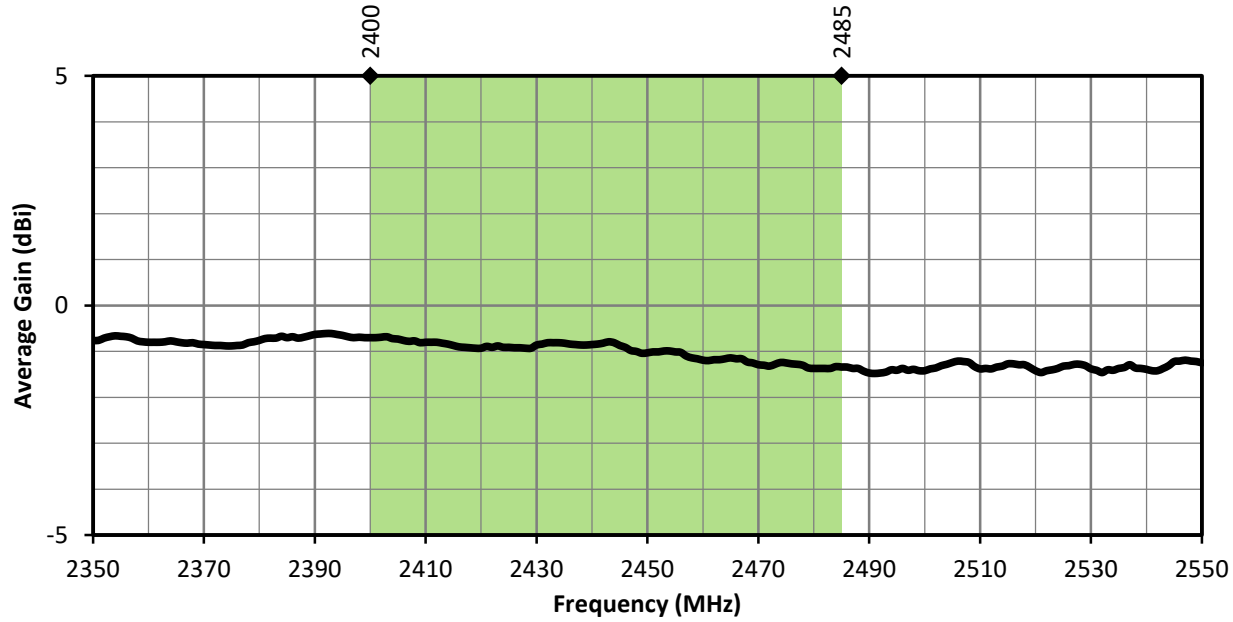


Figure 6. LPW Average Gain, Bent-90

Radiation Efficiency

Radiation efficiency (Figure 7), shows the ratio of power delivered to the antenna relative to the power radiated at the antenna, expressed as a percentage, where a higher percentage indicates better performance at a given frequency.

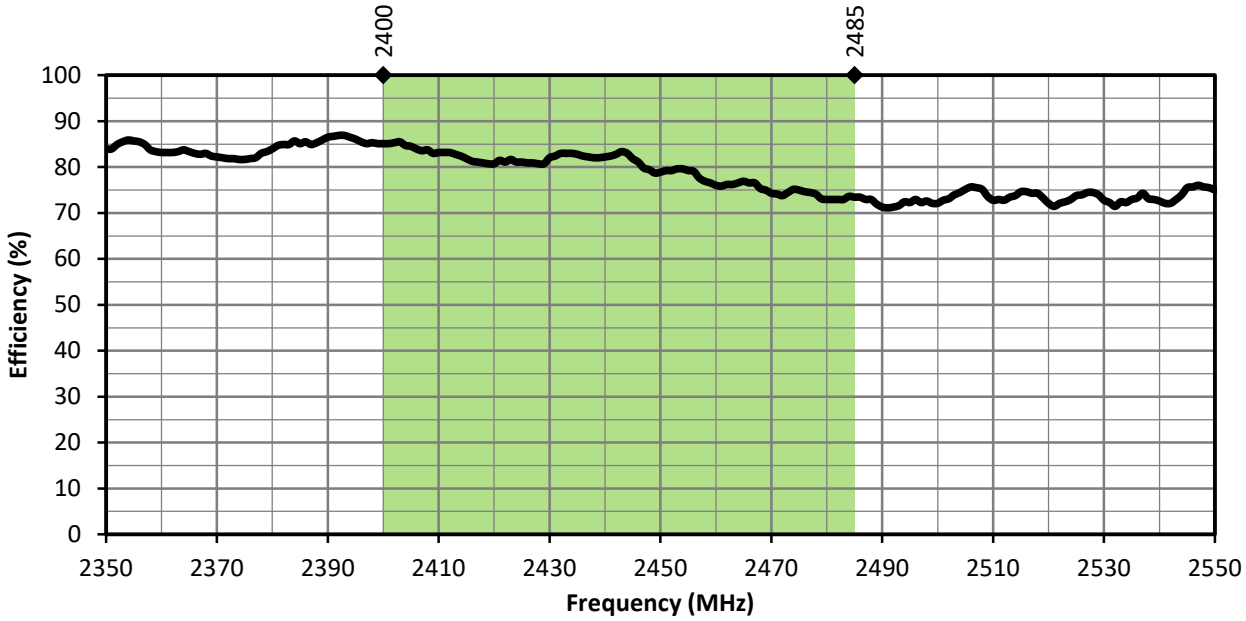


Figure 7. LPW Radiation Efficiency, Bent-90

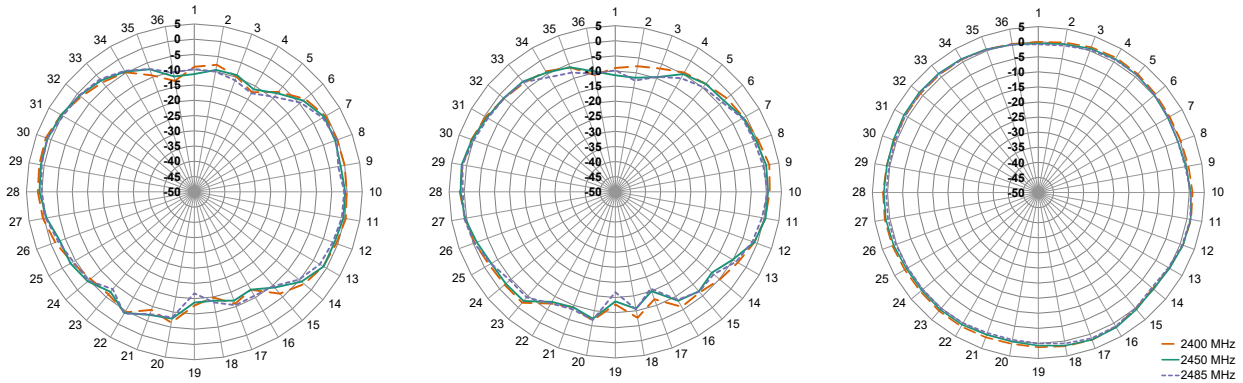
Radiation Patterns

Radiation patterns provide information about the directionality and 3-dimensional gain performance of the antenna by plotting gain at specific frequencies in three orthogonal planes. Antenna radiation patterns for a Bent-90 orientation are shown in Figure 8 using polar plots covering 360 degrees. The antenna graphic provides reference to the plane of the column of plots below it. Note: when viewed with typical PDF viewing software, zooming into radiation patterns is possible to reveal fine detail.

Radiation Patterns - Bent-90 Degrees

XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

2400 MHz to 2485 MHz (2450 MHz)



XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

Figure 8. Radiation Patterns for LPW, Bent-90

Antenna Orientation - Straight

The charts on the following pages represent data taken with the antenna oriented straight, as shown in Figure 9.

Figure 9. LPD Antenna Shown Straight

VSWR

Figure 10 provides the voltage standing wave ratio (VSWR) across the antenna bandwidth. VSWR describes the power reflected from the antenna back to the radio. A lower VSWR value indicates better antenna performance at a given frequency. Reflected power is also shown on the right-side vertical axis as a gauge of the percentage of transmitter power reflected back from the antenna.

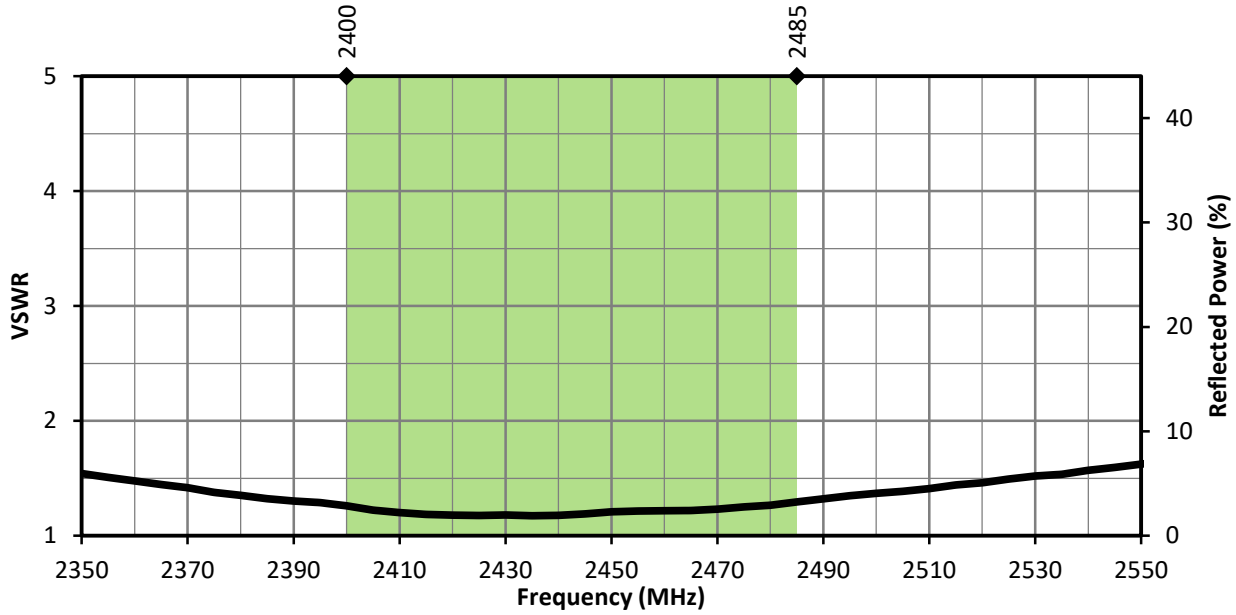


Figure 10. LPW VSWR, Straight

Return Loss

Return loss (Figure 11), represents the loss in power at the antenna due to reflected signals. Like VSWR, a lower return loss value indicates better antenna performance at a given frequency.

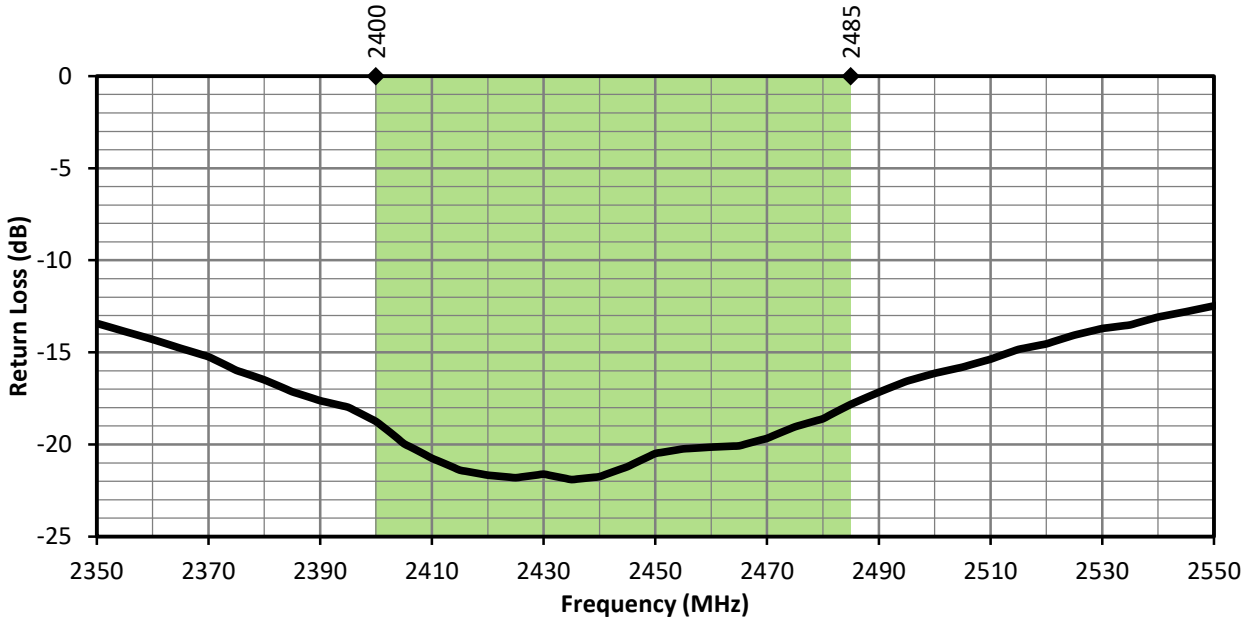


Figure 11. LPW Return Loss, Straight

Peak Gain

The peak gain across the antenna bandwidth is shown in Figure 12. Peak gain represents the maximum antenna input power concentration across 3-dimensional space, and therefore peak performance at a given frequency, but does not consider any directionality in the gain pattern.

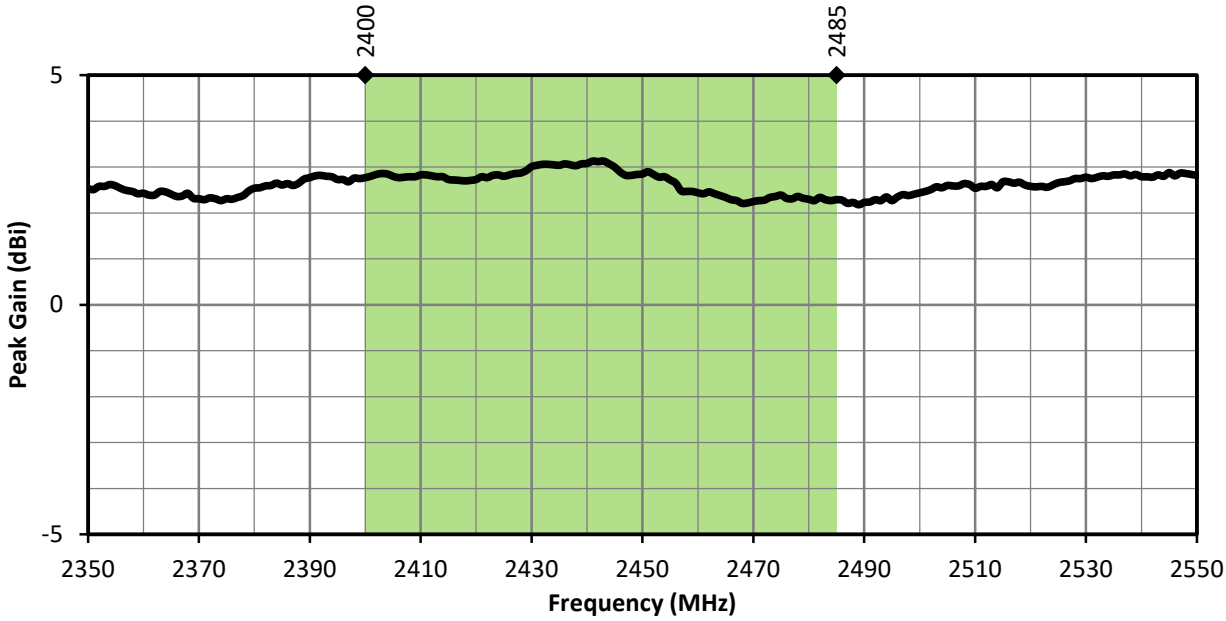


Figure 12. LPW Peak Gain, Straight

Average Gain

Average gain (Figure 13), is the average of all antenna gain in 3-dimensional space at each frequency, providing an indication of overall performance without expressing antenna directionality.

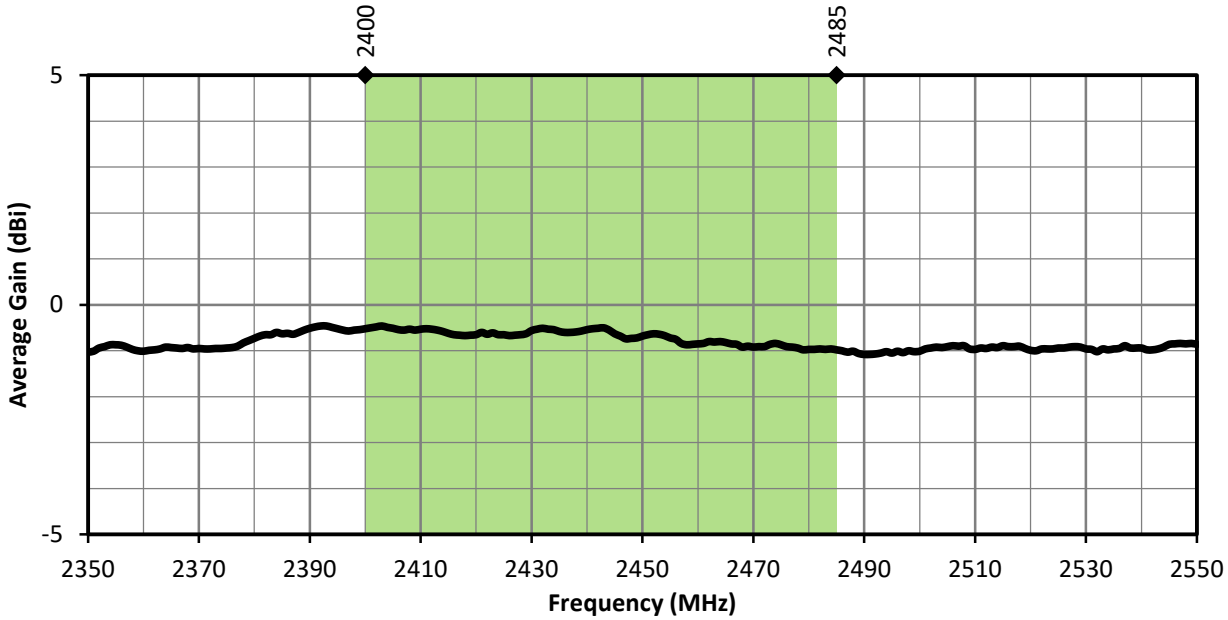


Figure 13. LPW Average Gain, Straight

Radiation Efficiency

Radiation efficiency (Figure 14), shows the ratio of power delivered to the antenna relative to the power radiated at the antenna, expressed as a percentage, where a higher percentage indicates better performance at a given frequency.

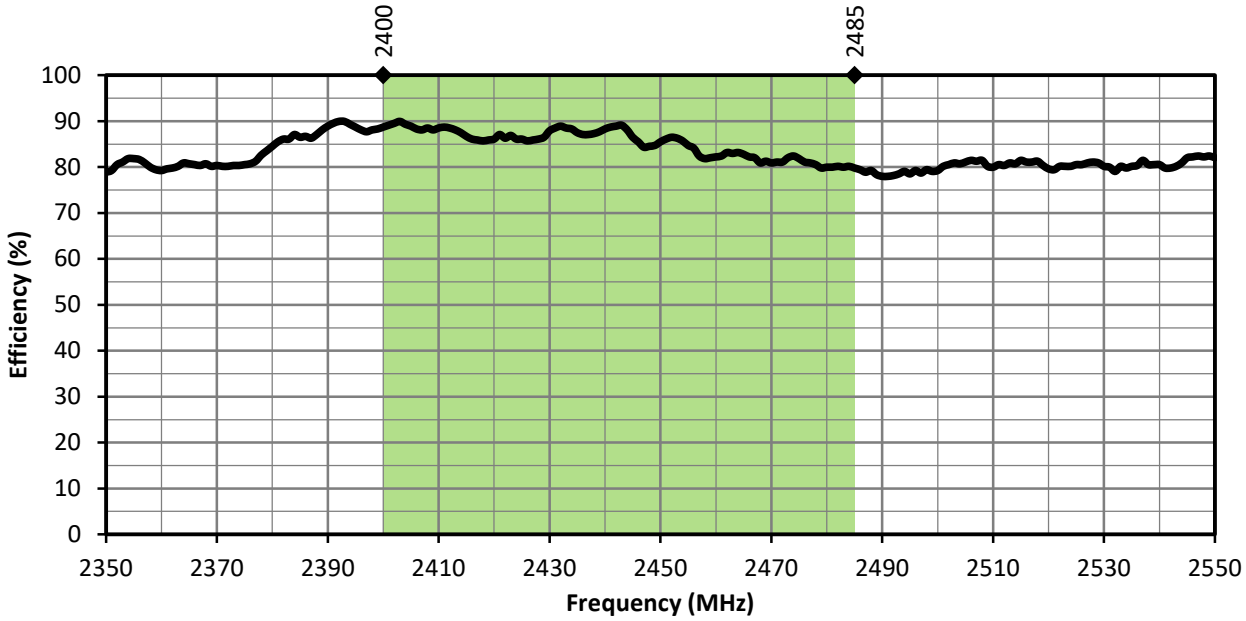


Figure 14. LPW Radiation Efficiency, Straight

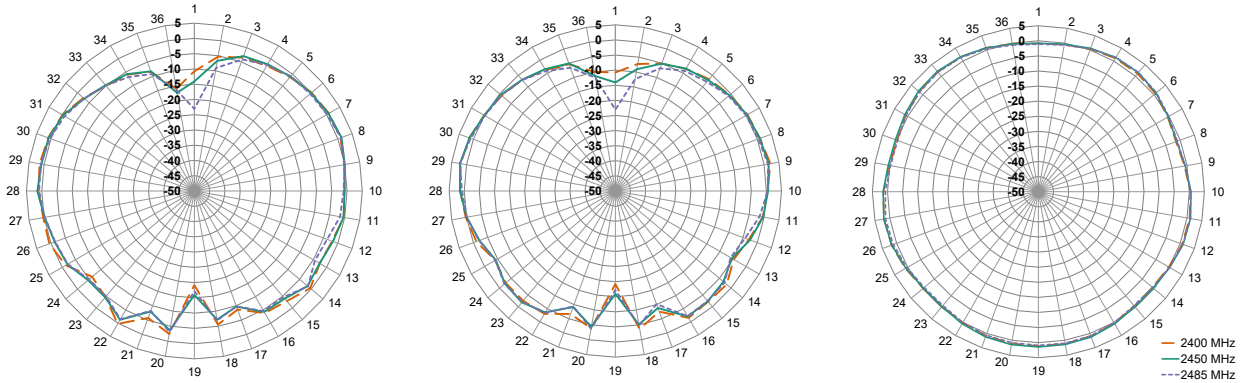
Radiation Patterns

Radiation patterns provide information about the directionality and 3-dimensional gain performance of the antenna by plotting gain at specific frequencies in three orthogonal planes. Antenna radiation patterns for a Straight orientation are shown in Figure 15 using polar plots covering 360 degrees. The antenna graphic provides reference to the plane of the column of plots below it. Note: when viewed with typical PDF viewing software, zooming into radiation patterns is possible to reveal fine detail.

Radiation Patterns - Straight

XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

2400 MHz to 2485 MHz (2450 MHz)



XZ-Plane Gain | YZ-Plane Gain | XY-Plane Gain

Figure 15. Radiation Patterns for LPW, Straight