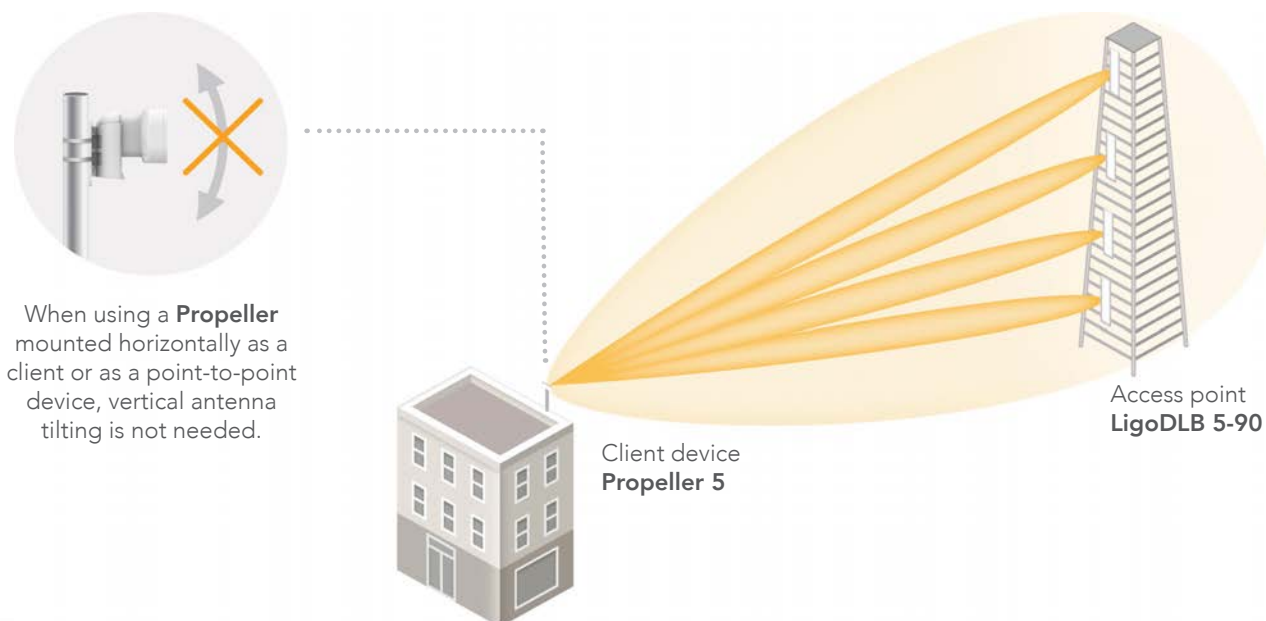




LigoDLB Propeller 2/ 5

BROCHURE

Easy antenna alignment



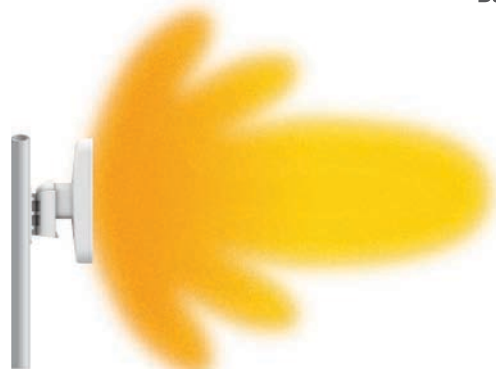
= **The Propeller** devices from LigoWave have a unique antenna characteristic changing mechanism for simple vertical or horizontal orientation based on the use case of the device. It is recommended to assemble the propeller in a horizontal position for a client mode. This way the antenna beam-width in the vertical polarization will be narrow (15° on a 5 GHz model and 35° on a 2 GHz model) and on the horizontal polarization (60° on a 5 GHz model and 70° on a 2 GHz model).

This ensures easy antenna alignment when installing the device without a need to tilt it upwards or downwards. Also, based on the test results in Table 1, the signal of the base station is received better and noise coming from the surrounding devices is lower. When a Propeller is assembled in a vertical position the antenna characteristics switch and vertical polarization beam-width is wider while horizontal polarization beam-width is narrower. This antenna orientation is better for the access point mode, where wider area coverage is necessary. Propellers can be used as WI-FI hotspot APs in outdoor networks when the device is assembled vertically and the Infinity series software version is loaded.

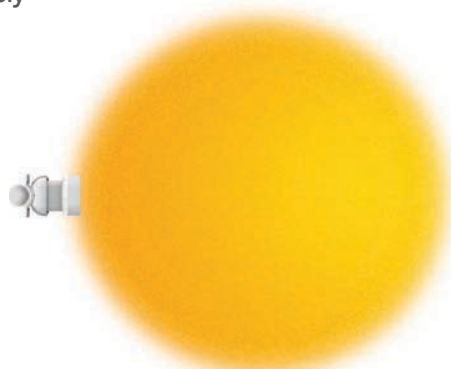
Antenna Pattern

Propeller antenna characteristics when assembled vertically

Base-station assembly



Side View

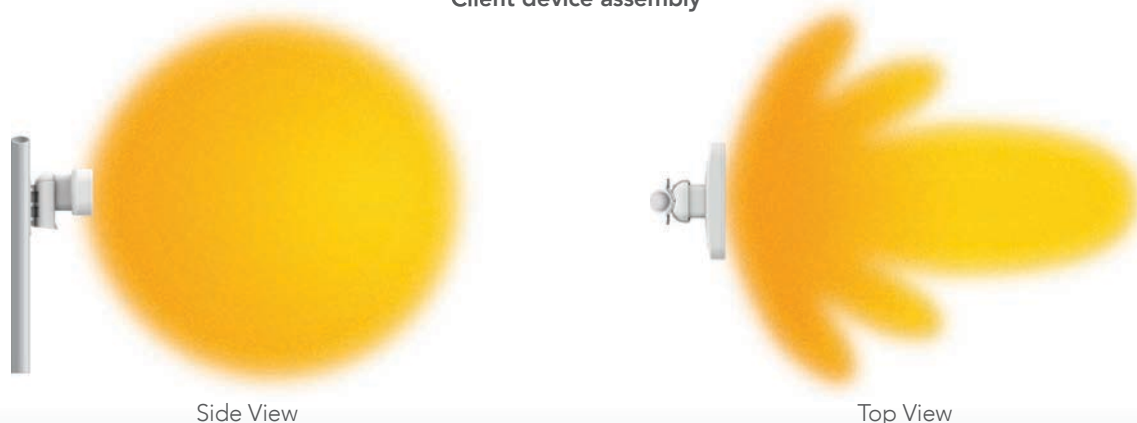


Top View

When a **Propeller** is assembled vertically the antenna characteristics are 60° on a 5 GHz model and 70° on a 2 GHz model for the vertical polarization and 15° on a 5 GHz model and 35° on a 2 GHz model for the horizontal polarization. This assembly is recommended for a base-station or an access point scenario.

Propeller antenna characteristics when assembled horizontally

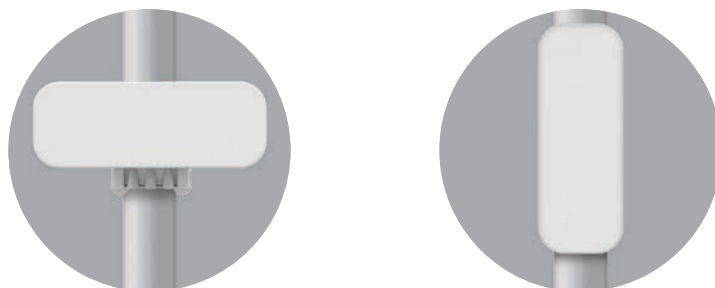
Client device assembly



When a **Propeller** is assembled horizontally the antenna characteristics are 60° on a 5 GHz model and 70° on a 2 GHz model for the horizontal polarization and 15° on a 5 GHz model and 35° on a 2 GHz model for the vertical polarization. This assembly is recommended for a client (CPE) scenario.

Outdoor site survey test

An outdoor test was carried out to show how the **Propeller 5** device assembly impacts the site survey results in exactly the same location. Table 1 below shows the results when the **Propeller 5** was used as a client device and assembled in both the horizontal and vertical positions. The test proves that when assembled horizontally the noise from surrounding devices decreases by 4 to 14 dB and the signal from the base station improves by 4 dB.



Propeller H Position			Propeller V position		
Frequency, GHz	Access Point	Signal level, dBm	Signal level, dBm	Difference (V-H), dBm	Difference (V-H), dBm
4.95	SSID1	-89	SSID1	-79	10
5.14	SSID2	-83	SSID2	-77	6
5.18	SSID3	-79	SSID3	-67	12
5.18	SSID4	-79	SSID4	-65	14
5.28	SSID5	-77	SSID5	-66	11
5.34	SSID6	-85	SSID6	-75	10
5.5	Base station	-54	Base station	-58	-4
5.64	SSID7	-87	SSID7	-83	4