

ImmersionRC 5.8GHz SpiroNET 13dBi flat patch antenna Instruction manual

Specifications

Typical impedance at 5.8GHz	>	50 Ohm
SWR	>	<1.35 at 5.8GHz
Gain	>	13dBic
Polarization	>	Left- or Right-hand circular (LHCP, RHCP)
Radiation pattern	>	35-degrees vertical and horizontal
Configuration	>	Multi-element, phased, patch antennas
Dimensions (LxWxH)	>	95x95x10mm
Weight (Grams)	>	52 grams
Connector	>	SMA male



Fig 1. ImmersionRC 5.8GHz SpiroNET RHCP patch antenna.

Overview

The ImmersionRC 5.8GHz SpiroNET 13dBi patch antenna was developed to offer a high gain alternative to its popular SpiroNET omni directional antennas. Using the ImmersionRC 5.8GHz SpiroNET 13dBi patch antenna directly on a pair of video goggles with built in 5.8GHz receiver, or mounted on a tripod, will easily triple to quadruple the range versus the SpiroNET omni directional antennas. On top of that it offers the same excellent multi-path rejection* not found in any other conventional patch antennas.

The principle behind this hinges on the use of circular polarization rather than linear polarization. Circular polarization has the benefit that reflections change polarization and see a natural attenuation of up to >20dB due to the polarization mismatch. This is an effective means of canceling the negative effects of multi-path interference*.

ImmersionRC offers the same 5.8GHz SpiroNET 13dBi patch antenna in different configurations, which from a specification point of view only differ from one another in terms of Left- or Right-hand circular polarization. The different configurations however do differ in terms of esthetics, i.e. they use different color plastic to distinguish one from another. The different configurations are listed below:

White radome > Red cable > SMA male connector : Right-hand circular (RHCP)
 White/black radome > Red cable > SMA male connector : Left-hand circular (LHCP)

Directions on use

In order to gain the most benefit from using ImmersionRC's 5.8GHz SpiroNET 13dBi patch antenna the antennas on the transmitter and the receiver need to be of the same polarization i.e. either both need to Right-hand or both need to be Left-hand polarized and for the best results they should both be SpiroNET antennas.

The antenna on the model needs to be a SpiroNET omni directional antenna and should be mounted as much vertical as possible whilst making sure that the antenna has free 'view' all around. Make sure that the antenna is not blocked by parts of your model, for example the battery or parts of a carbon fiber frame, etc. In practice this means mounting the antenna high up off of the center of your model, or from the tail or front, alternatively the antenna can be mounted pointing down, as long as it is mounted vertically.

On the ground the ImmersionRC 5.8GHz SpiroNET 13dBi patch antenna can be mounted to the video goggles directly, using the built-in 5.8GHz receiver. Take note however that the bulk of the gain is distributed in front of the antenna which has a beam width, much like a flashlight, of about 35-degrees. It is essential to stay within this beam to guarantee maximum range, or when flying through trees and bushes, maximum penetration.

If your aim is to both be flying around yourself as well as far out, you either need to keep turning your head towards the model, or opt for a ImmersionRC Duo5800 which will allow you to use a SpiroNET omni directional antenna on one antenna input and the SpiroNET 13dBi patch antenna on the other, where the receiver will always switch to the one with the best signal.

**Multi-path interference is the process in which reflections of the radio frequency signal emitted from the transmitter antenna off of solid objects sum at the receiver's antenna with the directly transmitted signal. Because these reflections are 180-degrees out of phase they can (partially) cancel out the signal that travels from the transmitter antenna directly. This causes for visible 'dropouts' in the audio/video signal. Multi-path rejection gives a number (in dB) of how much better the rejection of reflected signals is versus a linear polarized antenna, in this case, by using circular polarization, gains of >20dB can be had. I.e. the reflected signal sees a 20dB attenuation, which is a factor of 100x.*

Warranty

For warranty claims or repair requests please consult the retailer that you purchased this product from, they will be able to help you with your warranty claim or repair request.

Package contents

The ImmersionRC SpiroNET 13dBi patch antenna is shipped with the following items:

1pcs - ImmersionRC 5.8GHz SpiroNET 13dBi patch antenna.



Directions on safety



ImmersionRC advocates the safe use of their products, always make sure your equipment is in proper working order, is checked prior to every flight and that you are familiar and respect the equipment's capabilities and limitations. Do NOT fly recklessly, do NOT fly near airports, freeways, towns, people, etc, basically anywhere were a equipment failure or pilot error can result in injury or damage to people and/or property.

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