



# SIMULSAT

## Explained

*Frequently Asked Questions*

### Simulsat Explained

#### **Q: What is Simulsat?**

Simulsat is the world's only true full arc multiple satellite antenna that is capable of receiving satellite transmissions from 35 or more satellites simultaneously, without adjustment or degradation in performance from one satellite to the next.

#### **Q. Who is the typical user for Simulsat?**

The most common use for Simulsat antennas is as a downlink for broadcast and cable television distribution. However, Simulsats are simply receive earth stations and any application that calls for the reception of satellite signals may find a Simulsat to be there best option given that the antenna provides the maximum in long-term flexibility since any new requirements require nothing more than the placement of a new feed in the feedbox.

#### **Q. What is difference between the new Simulsat Precision C/Ku and legacy Simulsat?**

The Simulsat C/Ku is slightly flatter, has a much more refined parabolic shape in the vertical plane, has far better surface accuracy, and has a better working environment in the feedbox. The C/Ku has slightly improved performance at C-band and the C-band performance is more consistent across the whole reflector. The Ku-band performance is much-improved. For both bands, the adjacent satellite ingress is reduced.

### Features

#### **Q. How does Simulsat receive up to 35 to 37 satellite at the same time?**

The Simulsat reflector is spherical in the horizontal plane. This means that RF energy that arrives at the reflector is focused and reflected back toward the direction from which it came. The spherical radius of the reflector is such that for satellites that are spaced 2° apart in satellite longitude there is sufficient space between the focal points of the satellites that individual feeds can be placed next to each other. The vertical plane of the reflector is parabolic to better-focus the RF energy that a simple spherical reflector can.

#### **Q. Are there any differences in feed performance between the edge and the middle?**

For the satellites that are reflected by the edges of the reflector, there is some spillover and there is also more ground noise that the feeds are exposed to. However, the overall effect of this is minor and we have not seen a discernable difference in performance between edge feeds and middle feeds.

#### **Q. Can Simulsat receive both C and Ku-band signals from one satellite simultaneously?**

Yes, Simulsat is capable of both C and Ku-band reception simultaneously.

## **Q. Is it possible receive satellite signals that exist beyond the 70 to 75 degree arc?**

The constraints to having feeds outside the normal 70 or 75 degree arc are that the feeds will experience more spillover and more noise, and the feedbox is only wide enough to allow placement of feeds in the designed arc. However, some users have attached feeds to the outside of their feedboxes and successfully receive satellites that are outside of the normal arc.

## **Q. Are redundancy systems available for Simulsat?**

The most viable way to provide redundancy is to have two Simulsats. There is no feasible way to make the feeds redundant.

## **Q. My site requires more wind tolerance than standard specifications. Is this possible?**

ATCi is currently researching at what wind speed the antenna can be reasonably strengthened. The highest wind speed for which ATCi has certified a Simulsat was a Simulsat-7 that was built to survive winds of 160 mph (257.5 kph).

## **Installation**

### **Q. What is the standard lead-time from date of purchase order to installation?**

Usually this is 45 days, but current backlog has the lead time at 60 days.

### **Q. How many days does it take to install Simulsat?**

This depends on the complexity of the installation. Simulsat-5 and C/Ku installations on the ground with excellent site access, good customer support, and good weather take 3 days, and possibly even 2 days. Simulsat-5 and C/Ku installations on top of roofs that have good support and good weather take 5-6 days. Simulsat-5 and C/Ku installations on top of roofs, with poor customer support, and bad weather can take a couple of days longer. Ground-mounted Simulsat-7 installations with good site access, good support, and good weather take 7-9 days (weekend access to the site can have an effect also). Roof-mounted Simulsat-7 installations will take around 2 weeks and also vary depending on access, support, and weather.

### **Q. Can ATCi do installation?**

It is virtually mandatory that ATCi do all Simulsat installations. Simulsat alignment to the satellite arc, initial feed-peaking and customer training are best done by an experienced ATCi Site Engineer.

### **Q. How do I prepare my site for installation?**

The customer must have the foundation or roof mount structure designed and installed. ATCi provides documentation and support in this. The customer will also receive a Scope of Work Agreement wherein the customer's responsibilities are defined. These include such things as providing 2-3 helpers, ladders, electricity to the site, etc.

### **Q. What is the difference between a high mount and a low mount Simulsat?**

For the Simulsat-5 and Simulsat C/Ku the high mount is 4' 10" higher than the standard mount. This is generally used if a customer has a fence or some other obstruction that requires the antenna to be mounted higher. In general, it is best to mount the antenna as low as possible to protect it from RF interference and winds.

### **Q. Do I need a site survey before installation?**

Unless the site is very simple and/or there is great certainty that the site is free from RF interference, a site survey is highly recommended.

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## **Q. Can I use standard feeds and LNBs for the antenna or do I have to use ones that are built specially to fit on the Simulsat antenna?**

The feeds for the Simulsat must be Simulsat feeds. Simulsat feeds are narrower than standard feeds, which is necessary for 2° spaced satellites. Simulsat feeds are specifically designed to match the focal length-to-diameter ratio of the system, and Simulsat feeds are housed in racks that are necessary for them to be placed in the feedbox and allow for peaking. Any commercial LNB will work with Simulsat feeds.

## **Q. Are there any electrical / mechanical limitations on the Simulsat that will prevent it from being able to be used outside of US?**

No, there are no such limitations. The Simulsat has been successfully installed worldwide.

## **Maintenance**

### **Q. What kind of maintenance is required after installing Simulsat?**

Simulsat antennas require minimal maintenance. There are no moving parts and all materials are either fiberglass, hot dip galvanized steel, or stainless steel. ATCi recommends annual checks of all hardware, steel, and connectors. Feeds should be re-peaked as required, but commonly there is no need to re-peak feeds that are performing satisfactorily. The reflector should be washed and waxed every few months; it is recommended to wax the reflector with a car wax that is appropriate for fiberglass.

### **Q. Is it possible to install a new feed without disrupting the other live feeds? If so, how can this be done?**

If a new feed needs to be installed, simply remove the feedbox covers and place the feed in the appropriate location in the feedbox. A ladder or bucket truck will be required, and the feed will need to be optimized by using a spectrum analyzer. The portable spectrum analyzers that ATCi supplies are ideal for this task. The ladder or bucket and the analyzer will not disrupt other live feeds.

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