



# Flat Satellite Antenna

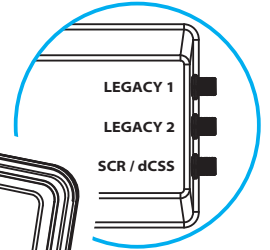
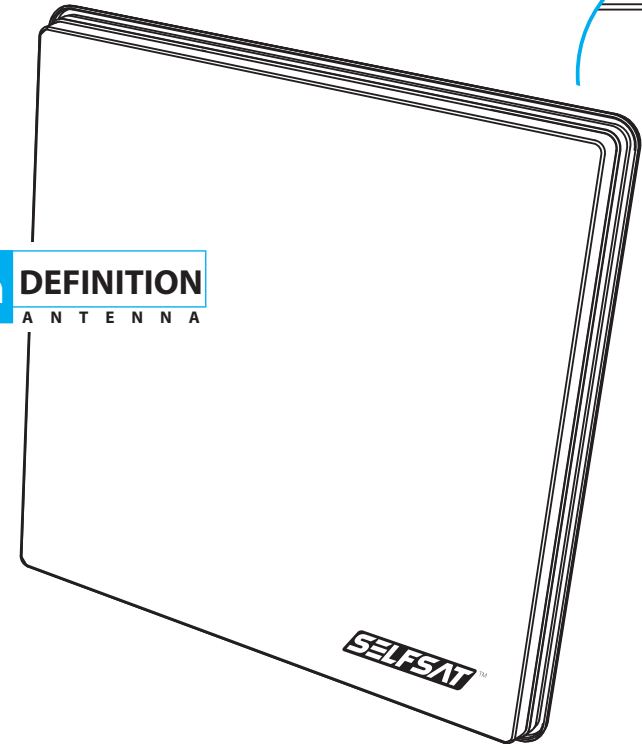
SELSAT-H50dCSS



# Flat Satellite Antenna

SELSAT-H50dCSS

High DEFINITION  
ANTENNA



User manual  
Bedienungsanleitung  
Manuel utilisateur  
Manuale utente  
ver 1.1

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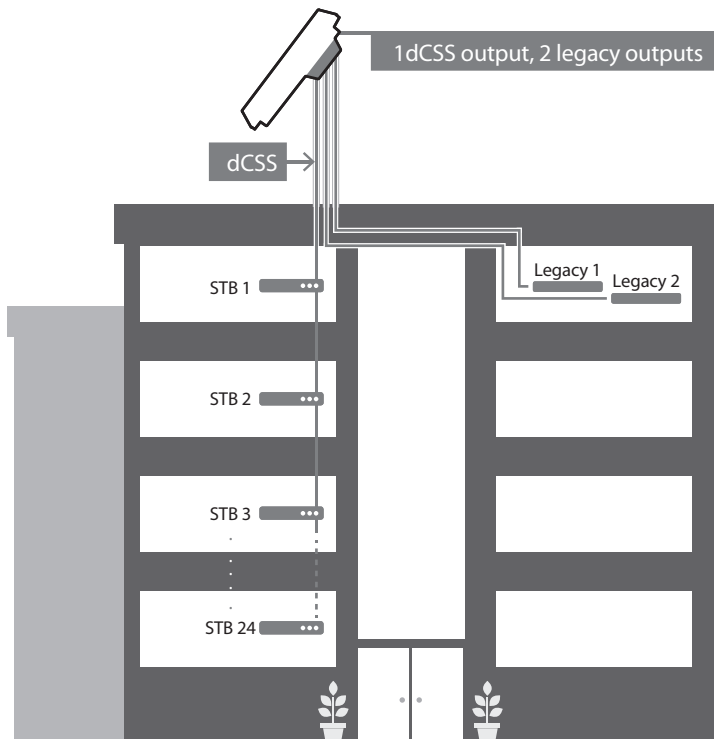
# What is SELFSAT-H50dCSS flat antenna?

SELSAT antenna series is a horn array type satellite antenna with dual linear polarization. It receives signal from major satellites and would replace a normal former parabolic dish. This small, capable and simple antenna can be installed in a few minutes.

SELSAT flat antenna can be used for both free to air and encrypted (requiring a subscription with an operator) channel reception; it can also receive all high definition channels with a superior image quality.

SELSAT-H50dCSS can provide complete programs of a satellite to multi users via one coaxial cable. The two additional LNB legacy outputs offer additional flexibility for the connection of traditional STB. This is also ideal solution which is able to be operated without the use of a multi-switch different digital TV sets or STBs.

Please read the following instruction to install the antenna properly.



## Note

For multiple use of dCSS STB, splitter(s) is required to operate SELFSAT-H50dCSS. The splitter is not included in the package.

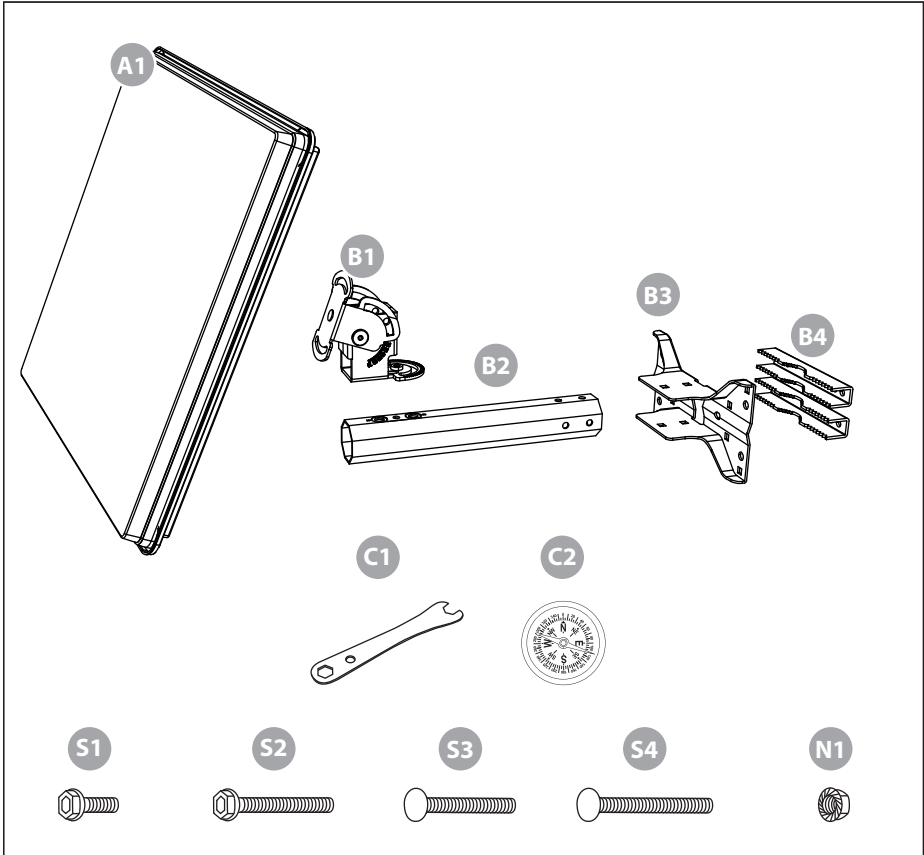
# Safety Instruction

- Before using this product, please read this manual carefully and follow all the installation, mounting & orientation instructions correctly.
- All the instructions should be followed in order to avoid any technical problems.
- Any electric or magnetic field close to the SELFSAT-H50dCSS series may cause a bad reception or even cut off the signal completely.
- Do not make any holes on the plastic antenna cover to prevent from water penetration.
- When handling the antenna, please do it carefully as any impact might cause damage to the electronics.
- Do not open the cover, any attempt to repair by a non-qualified person can be dangerous and void the warranty.
- Any obstacle (buildings, trees, etc....) will block the reception of the signal from the satellite to the antenna.
- Do not paint or add any substance on the antenna cover, this will block the reception of the signal from the satellite.
- The cable between the antenna and the STB should not exceed 30m as it will decrease the quality of the signal.
- The use non-isolated jacks will result in a loss of the signal level.
- Do not forget to adjust the antenna and the bracket to the cross-polarity.
- Tighten all the screws of the antenna once you have finished the adjustments.
- This product contains one dCSS port with two legacy ports, it is forbidden to add, change or modify the LNB.
- For more precise details on the above points or for any information, please ask your retailer or customer service.

## Warning

Antennas improperly installed or installed to an inadequate structure are very susceptible to wind damage. This damage can be very serious or even life threatening. The owner and installer assumes full responsibility that the installation is structurally sound to support all loads (weight, wind & ice) and properly sealed against leaks. The manufacturer will not accept liability for any damage caused by a satellite system due to the many unknown variable applications.

# Contents



A1 Antenna

B1 Angle Bracket

B2 Main Support

B3 Fix Bracket A

B4 Fix Bracket B (x2)

C1 Spanner

C2 Compass

S1 Screw M6x18 SEMS2 (x3)

S2 Screw M6x50 SEMS2 (x1)

S3 Round Head Square Neck Bolt M6x50 (x3)

S4 Round Head Square Neck Bolt M6x75 (x4)

N1 Flanged Nut M6 (x7)

# How to install?

You will be able to install SELFSAT-H50dCSS easily by yourself by following this manual step by step.

Before installing your antenna, you have to check that SELFSAT-H50dCSS box contains all the items listed above in the 'Contents'. In the event of any missing parts, please contact your distributor.

## Step 1: Where to install?

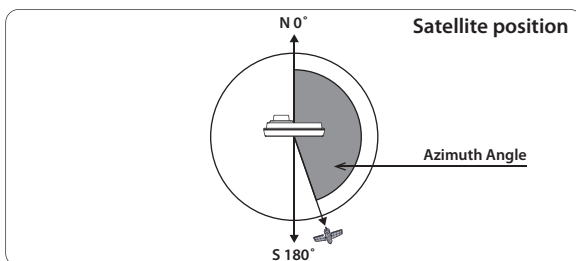
In order to receive a signal from the Satellite, SELFSAT-H50dCSS has to be installed in an open space (outside the house or the apartment), in the direction of the satellite towards the equator, for which, you will need a compass to exactly orient SELFSAT-H50dCSS toward the satellite.

### Note

Please take reference to the table of the Azimuth angles specified in the back pages of this manual.



< Compass >



### Note

To ensure an accurate compass reading, stay away from large metal objects, specifically electrical cables and then make multiple readings.

Make sure that there are no obstacles in front of SELFSAT-H50dCSS which can decrease the signal reception quality, such as buildings or trees (you may keep in mind that trees will grow and may block the signal).

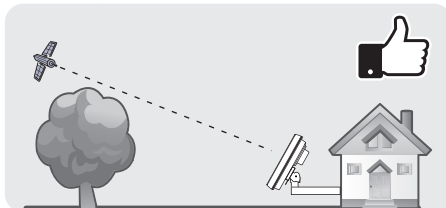
In order to be able to fix and install your antenna easily, you might choose an easy accessible place without any potential danger for installation.

Think about the way you prefer to place your cable in a discreet way from the SELFSAT-H50dCSS to your STB. The antenna should not be too distant from your STB; a cable longer than 30 meters may decrease the quality of the signal.

### Bad Quality Signal Reception



### Good Quality Signal Reception



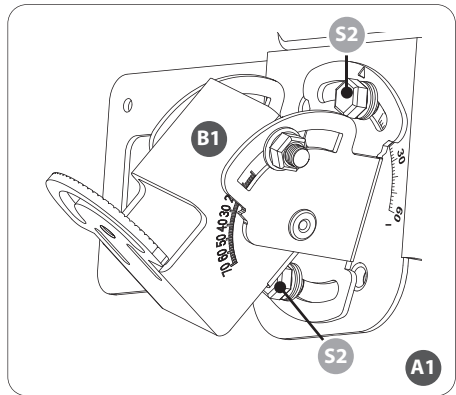
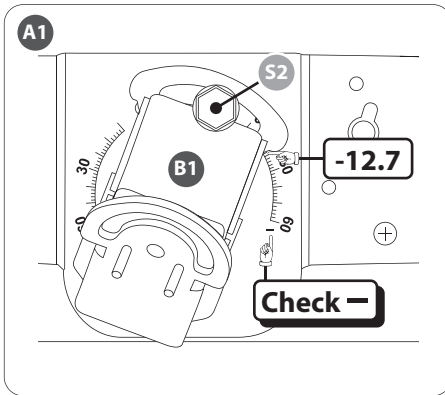
## Step 2: Check information

In order to install antenna, you need to find skew, elevation and azimuth angle by referring the table on the back of the manual. If you can't find your location, please refer to the information of the nearest area from your location. This manual will show you the installation example to receive ASTRA1 satellite in Brest region of France. The angle information for Brest region is Skew : -12.7, El : 30, Az : 149.6

## Step 3: Part assembly

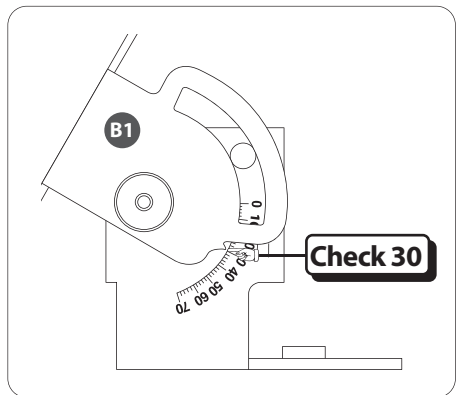
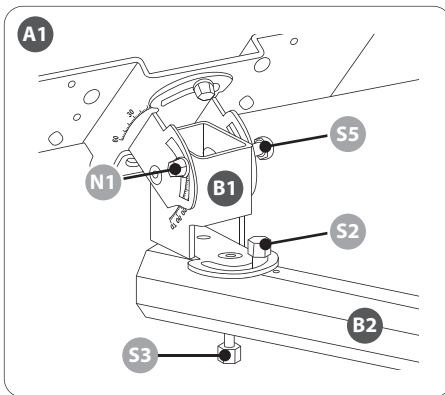
### 1) Fix skew - Joint angle bracket (B1) and antenna body (A1)

Joint angle bracket and antenna body by screw adjusting skew angle at -12.7



### 2) Fix elevation - Joint antenna body (A1) and main support (B2)

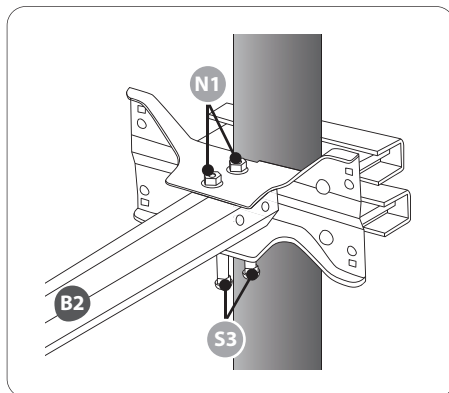
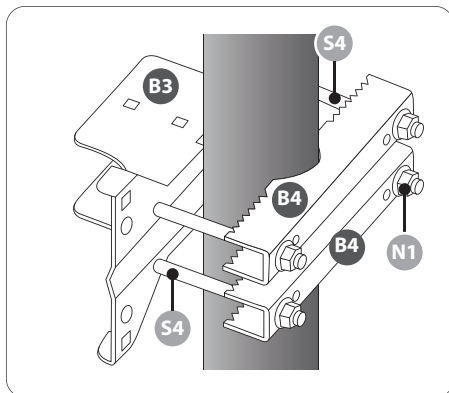
Joint antenna body and main support. For delicate adjustment elevation and azimuth angle, please don't fix bolt and nut tightly.



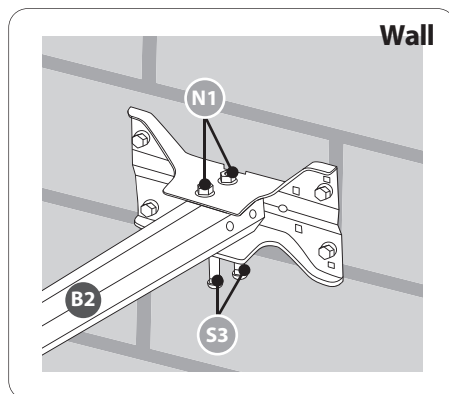
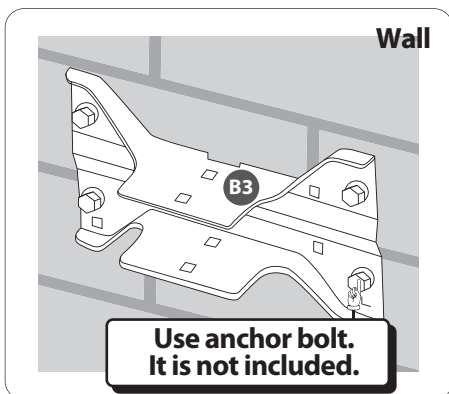
## Step 4: Installation fix bracket

Select the preferred mounting type among included in the package and make sure that the correct components are used to assemble antenna and bracket as labeled in the images.

### 1) Clamp on balcony type



### 2) Wall mounting type

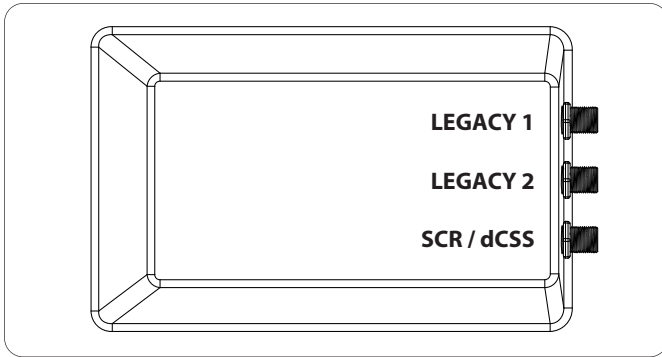




## Step 5: SELFSAT-H50dCSS installation and how to use

Since the SELFSAT-H50dCSS antenna provides one dCSS output and two legacy outputs, the user can select different port upon your STB types (dCSS compatible or traditional).

Make sure that connect traditional STB(s) to legacy output(s) and connect dCSS compatible STB to SCR / dCSS output by referring the below image.



### Note

SELFSAT-H50dCSS antenna includes protection caps for the outputs. Please put the protection cap on the outputs when you do not use the ports to prevent water penetration. Also, when you are using the port, please keep the connector protection cap and do not lose it for later use.

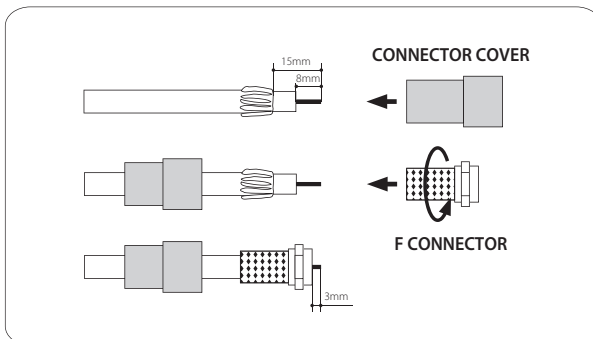
### 1) Connect the SELFSAT-H50dCSS antenna to the STB

Once you have installed the antenna in an open space or mounted the way you want it to be, the next step is to connect them all together.

In order to be able to watch your favorite satellite programs, you need to connect your satellite antenna to a STB with a cable. The cable between the antenna and the STB should not exceed 30m as it will decrease the quality of the signal. The use of a long or bad quality cable and/or unisolated jacks can cause lowering the signal level, it would be preferable to use an RG6 Coaxial cable (HF 17VATC or 19VATC cable), in order to minimize a signal loss.

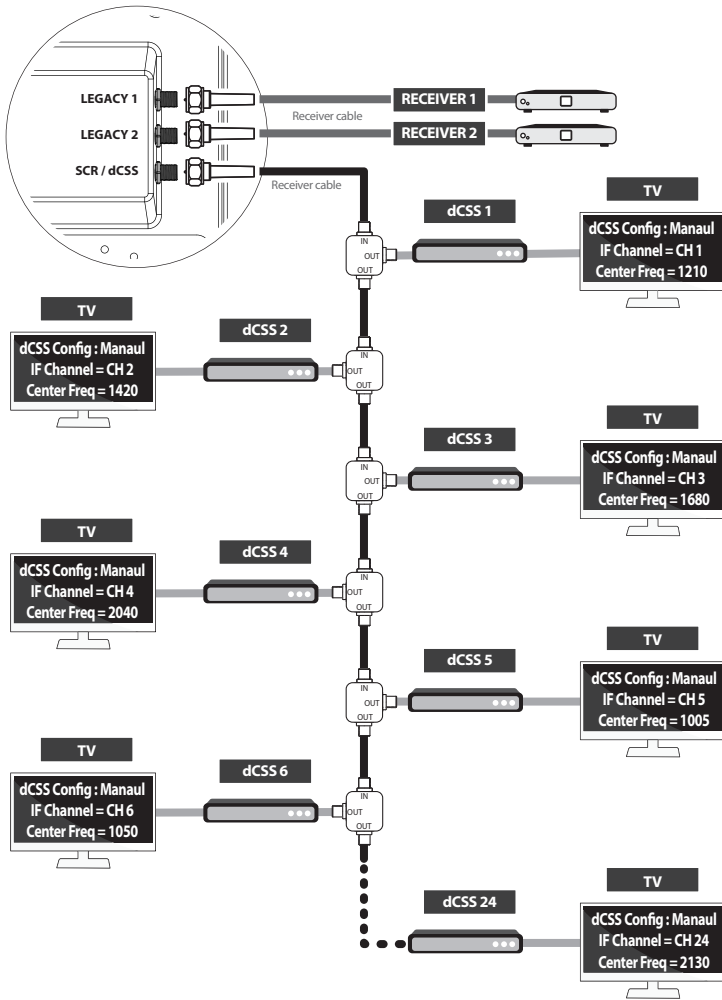
Just connect the RF coaxial cable from the SELFSAT-H50dCSS antenna to your STB.

#### - How to prepare the cable?



## 2) How to connect the cable to the antenna and the STB?

The two legacy outputs offer additional flexibility for the connection of traditional STB. dCSS output is only used for connection to dCSS compatible STB.



### Note

Each dCSS STB needs to set up different IF channel and center frequency from others.

### Note

For multiple use of dCSS, splitter(s) is required and splitter is not included in the package.

### 3) Satellite searching and fixing the antenna

① Once all connected, turn on the TV and the STB.

Select the antenna / LNB setting menu on your STB.

② Setting depending on STB type

a. Setting of traditional STB

Select the LNB setting menu on your STB.

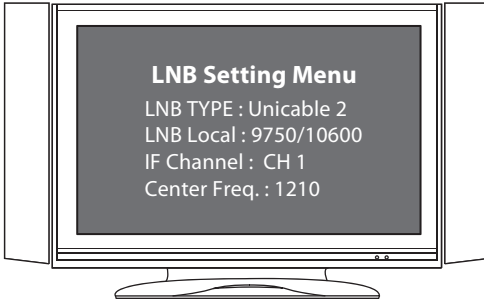
Set LNB type to Universal and confirm the frequency.

b. Setting of dCSS compatible STB

Select the LNB setting menu on your dCSS STB.

Set LNB type to dCSS(Unicable2 or JESS) setting and confirm the IF channel and the center frequency as below.

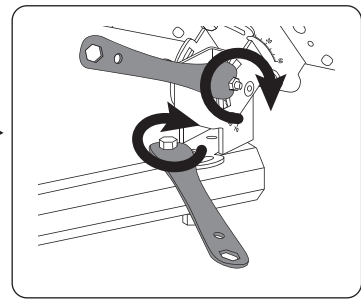
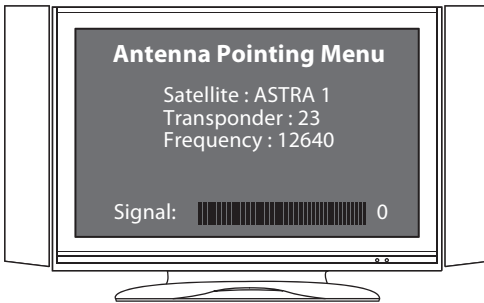
In case the numbers are different, change them as shown image.



IF Frequency list	
CH01 1210 MHz	CH13 1520 MHz
CH02 1420 MHz	CH14 1565 MHz
CH03 1680 MHz	CH15 1610 MHz
CH04 2040 MHz	CH16 1725 MHz
CH05 1005 MHz	CH17 1770 MHz
CH06 1050 MHz	CH18 1815 MHz
CH07 1095 MHz	CH19 1860 MHz
CH08 1140 MHz	CH20 1905 MHz
CH09 1260 MHz	CH21 1950 MHz
CH10 1305 MHz	CH22 1995 MHz
CH11 1350 MHz	CH23 2085 MHz
CH12 1475 MHz	CH24 2130 MHz

③ The signal level and quality is indicated on the TV screen and will fluctuate and change color according to the adjustment & movement of the antenna while you are pointing & finding (azimuth, elevation angle).

The level indicates the power of the signal and the color is the signal reception quality from the chosen satellite.



#### Note

For multiple dCSS STB settings, only ONE center frequency can be used with each STB at the same time.

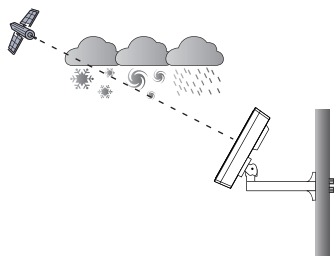
# Troubleshooting

If the signal is not found, be sure the STB user manual and the antenna user manual have been followed closely, check the following:

- Make sure all cable connections are correct and each connection is seated / tightened properly.
- Inspect the inside of each cable connector for dirt or possible connector to case/shield short.
- Verify the Azimuth, Elevation and Skew angles for your location by ZIP code.
- Make sure the Skew and Elevation pointers are aligned correctly to the scales. Do not use washer or bolt as reference.
- Make sure the Skew adjustment is not changed from the recommended setting for the antenna location.
- Remove exiting TV-specific components, such as TV splitter, etc; reduce the installation to the basic connections called out in this guide. Such components may not work with the satellite signal and they may be in the wall where you can't see them. When in doubt, run RG 6 cable directly to your STB.
- Make sure there are no obstructions (trees, buildings, windows, corner or overhang of your roof, your body or hands).
- RG 6 cable with solid copper center conductor is highly recommended because it has much lower DC voltage drop compared to RG 6 cable with a copper-coated, steel center conductor.
- Standard RG 59 cable causes too much DC drop and signal drop; it can not be used to pass the satellite signal. RG 6 coaxial cable must be used.
- Some after-market, off-the-shelf add-on components may not be as advertised. They might not work or could cause additional DC drops and signal amplitude attenuation. Remove such components, go back to the basic connections called out in this manual and re-verify.
- Make sure the satellite cable is connected to the "Sat In" jack, not the "Antenna In" jack. The "Antenna In" jack at the back of the receiver is for off-air antenna input or cable TV input.
- If all are done correctly but the signal is still not found, change the Elevation adjustment of the antenna slightly ( $\pm 2^{\circ}\text{C}$ , the  $\pm 4^{\circ}\text{C}$  from the called-for setting) and repeat the procedure.
- Make sure the Access Card from your STB is fully inserted into the Access Card slot and oriented correctly.

## Signal loss / Rain fade

- The satellite signal may be lost temporarily due to unusually heavy rainfall. An optimally aligned antenna, along with the shortest possible cable run, minimizes the chances of "rain fade."
- Make sure the antenna is mounted securely to prevent it from being blown out of alignment in a heavy wind.
- Heavy snow accumulation on the antenna may reduce the satellite signal strength; snow should be swept away as soon as possible.
- Tree foliage growth into antenna's line-of-sight to the satellite may result in gradual loss of picture.



### Installation using long cable

- For installations where the RG 6 cable runs from the STB to the LNB far exceeds 30m(45m or more), as encountered in a commercial or multi-dwelling building, you need more supportive power for stabilization.
- You will also need an additional RF signal amplifier to compensate the signal amplitude loss. Otherwise, your antenna and STB may not work properly and be subject to frequent outages in adverse weather. Contact the professional concerning such installations.



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# Was ist die SELFSAT-H50dCSS flachantenne?

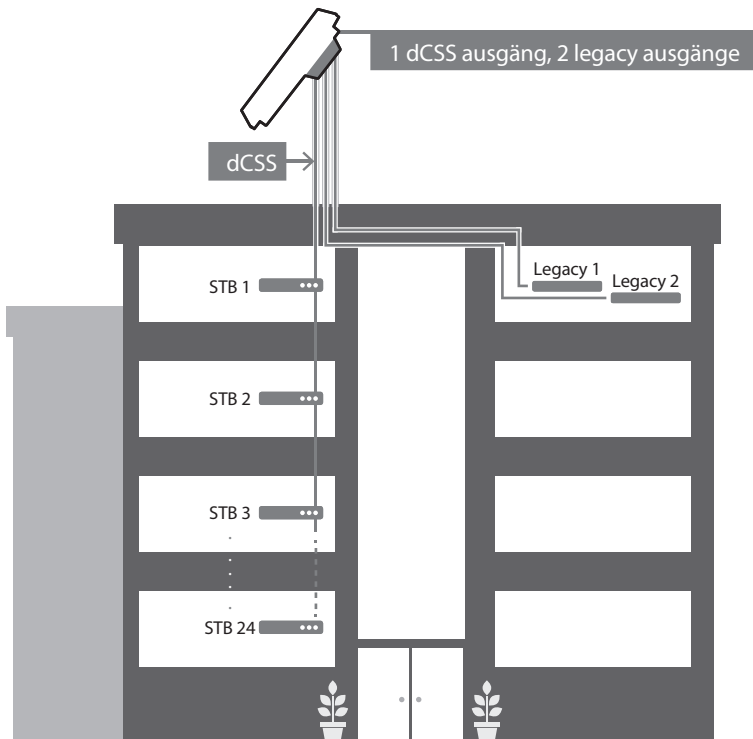
Die SELFSAT flachantenne ist eine satellitenantenne vom typ hornanordnung mit doppelter linear-polarisation, die signale von großen satelliten empfangen kann und eine normale parabol-antenne, wie es sie früher gab, ersetzen kann.

Da sie klein, unauffällig und bedienungsfreundlich ist, kann sie innerhalb von wenigen minuten aufgestellt werden und als tragbare antenne für sämtliche arten des satellitenempfangs verwendet werden.

Die SELFSAT flachantenne kann sowohl für den empfang frei zugänglicher als auch den verschlüsselter kanäle verwendet werden (wobei in diesem fall ein abonnement bei einem betreiber benötigt wird); sie kann auch alle kknäle mit hochauflösenden und deshalb hervorragenden fernsehbildern empfangen.

SELSAT-H50dCSS kann die kompletten programme eines satelliten über ein koaxialkabel bis zu 4 teilnehmern zur verfügung stellen. Die beiden zusätzlichen LNB legacy ausgänge bieten zusätzliche flexibilität für den anschluss von normalen empfängern. Dies ist die ideale lösung um bis zu sechs verschiedene digitale TV-Geräte oder empfänger, ohne die verwendung eines multischalters zu betreiben.

Bitte lesen sie die folgende anweisung um die antenne richtig zu installieren.



## Hinweis

Für ein Vielfaches von dCSS STB ist ein Splitter erforderlich, um SELFSAT-H50dCSS betreiben zu können. Der Splitter ist nicht im Lieferumfang enthalten.

# Sicherheitsanweisungen

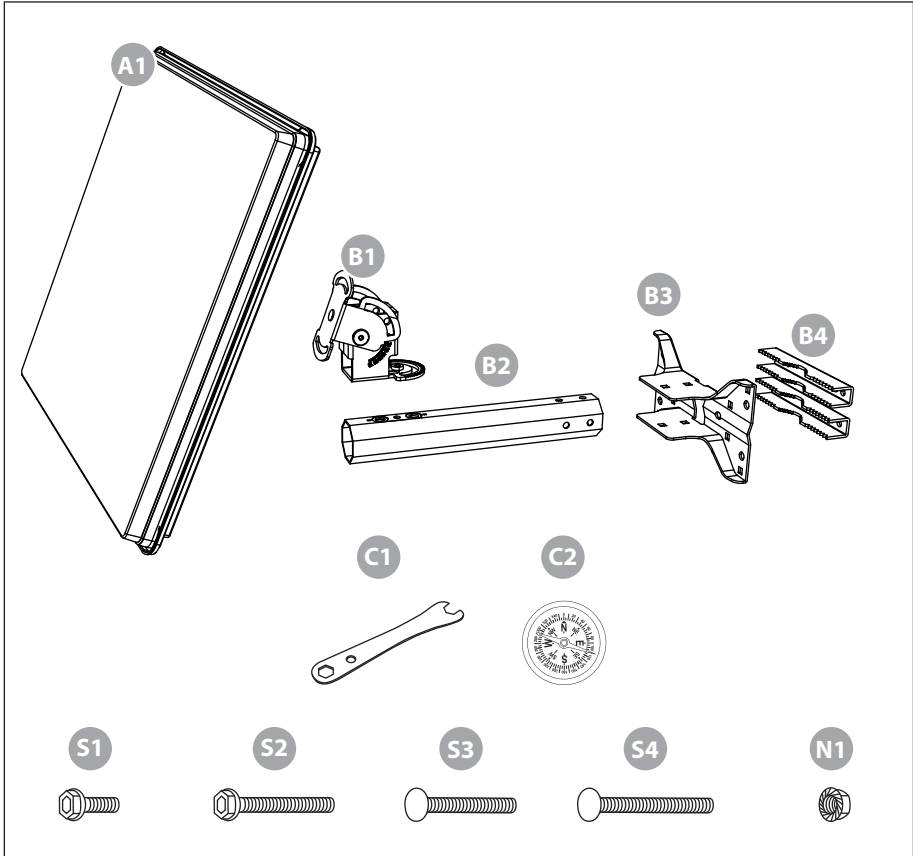
- Bitte lesen Sie vor der Verwendung dieses Produkts diese Bedienungsanleitung sorgfältig durch und befolgen Sie genau alle Montage-, Befestigungs- und Ausrichtungsanweisungen.
- Alle Anweisungen sollten befolgt werden, um technische Probleme zu vermeiden.
- Elektrische oder magnetische Felder nahe des SELFSAT-H50dCSS können zu schlechtem Empfang führen oder sogar den Empfang des Signals ganz verhindern.
- Machen Sie keine Löcher in die Kunststoffabdeckung der Antenne, da diese die Antenne vor Feuchtigkeit schützt.
- Handhaben Sie die Antenne mit Vorsicht, da Stöße die Elektronik beschädigen können.
- Öffnen Sie nicht die Abdeckung. Jeder Reparaturversuch durch nicht qualifizierte Personen kann gefährlich sein und die Garantieansprüche erlöschen lassen.
- Hindernisse (Gebäude, Bäume, usw.) können den Empfang des Satellitensignals blockieren.
- Lackieren Sie nicht die Antennenabdeckung oder bringen daran irgendwelche Materialien an, da dies den Empfang des Satellitensignals blockiert.
- Das Kabel zwischen der Antenne und dem Satellitenempfänger sollte 30m nicht überschreiten, da sonst die Qualität des Signals abnehmen wird.
- Der Gebrauch von nicht-isolierten Steckern führt zu einem Verlust der Signalstärke.
- Vergessen Sie nicht, die Antenne und die Halterung an die Kreuzpolarität anzupassen.
- Ziehen Sie alle Schrauben der Antenne fest, nachdem Sie die Einstellungen abgeschlossen haben.
- Dieses Produkt enthält ein dCSS ausgang mit zwei Legacy ausgange. Jegliche Anbauten, Änderungen oder Modifikationen daran sind verboten.
- Für genauere Einzelheiten zu den oben genannten Punkten oder für weitere Informationen wenden Sie sich bitte an Ihren Händler oder den Kundendienst.

## WARNUNG

Nicht korrekt oder an eine unpassende Struktur angebrachte Antennen sind leicht durch den Wind zu beschädigen. Diese Schäden können sehr ernsthafter Natur und sogar lebensgefährlich sein. Der Eigentümer und Antennen-Installateur übernimmt die volle Verantwortung dafür, dass die Installation strukturell in Ordnung ist, damit sie sämtliche Lasten tragen kann (Gewicht, Wind und Eis) und gegen lecke Stellen vorschriftsmäßig abgedichtet ist. Der Hersteller übernimmt aufgrund der vielen unbekannt variierenden Anwendungen keine Haftung für Schäden, die durch ein Satellitensystem verursacht worden sind.



# Lieferumfang



**A1** Antennen Hauptteil

**B1** Winkelhalterung

**B2** Hauptstütze

**B3** Fensterhalterung A

**B4** Fensterhalterung B

**C1** Schraubenschlüssel

**C2** Kompass

**S1** Sechskantschraube M6x18 SEMS2 (x3)

**S2** Sechskantschraube M6x50 SEMS2 (x1)

**S3** Halbrund-Vierkant-Halsschraube M6x50 (x3)

**S4** Halbrund-Vierkant-Halsschraube M6x75 (x4)

**N1** Geflanschte Mutter M6 (x7)

# Wo wird es installieren?

Sie können die SELFSAT-H50dCSS ganz einfach montieren, wenn Sie diese Anleitung Schritt für Schritt befolgen.

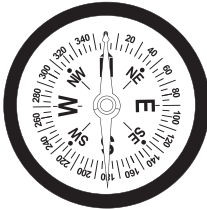
Bevor Sie Ihre Antenne montieren, sollten Sie überprüfen, ob die SELFSAT-H50dCSS Verpackung alle Bauteile enthält, die oben unter "Lieferumfang" aufgeführt sind. Falls Teile fehlen sollten, kontaktieren Sie bitte Ihren Händler.

## Schritt 1: Wo wird es installiert?

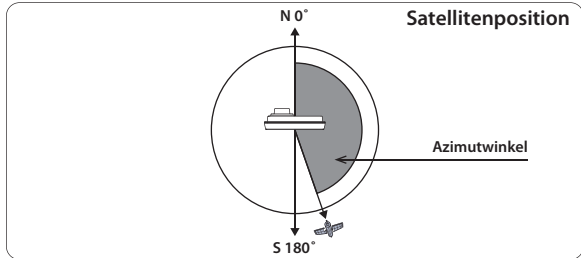
Um ein Satellitensignal zu empfangen, muss das SELFSAT-H50dCSS im Freien (außerhalb des Hauses oder der Wohnung), in Richtung des Satelliten zum Äquator hin, montiert werden. Dafür benötigen Sie einen Kompass um die SELFSAT-H50dCSS genau nach dem Satelliten auszurichten.

### Hinweis

Als Bezug nehmen Sie bitte die Tabelle der Azimut-Winkel, die auf den letzten Seiten dieser Bedienungsanleitung aufgeführt sind.



< Kompass >



### Hinweis

Um ein genaues Ablesen des Kompass zu garantieren, sollten Sie von großen Metallobjekten, insbesondere elektrischen Leitungen, fernbleiben und den Kompass mehrmals ablesen.

Stellen Sie sicher, dass sich keine Hindernisse, wie Gebäude oder Bäume, vor der SELFSAT-H50dCSS befinden, da dies die Qualität des Signalempfangs verringern kann. (Denken Sie daran, dass Bäume wachsen und das Signal blockieren können).

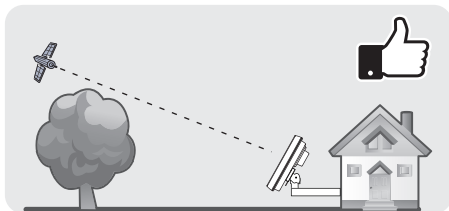
Um die Antenne einfach befestigen und reparieren zu können, sollten Sie einen leicht zugänglichen Ort, ohne irgendwelche Gefahren für die Montage, auswählen.

Überlegen Sie sich einen Weg, um Ihr Kabel auf diskrete Weise vom SELFSAT-H50dCSS zu Ihrer STB zu führen. Die Antenne sollte nicht zu weit entfernt von Ihrem STB befinden; Mehr als 30 Meter Kabellänge können die Qualität des Signals vermindern.

### Signal wird schlecht empfangen



### Signal wird gut empfangen



## Schritt 2: Information überprüfen

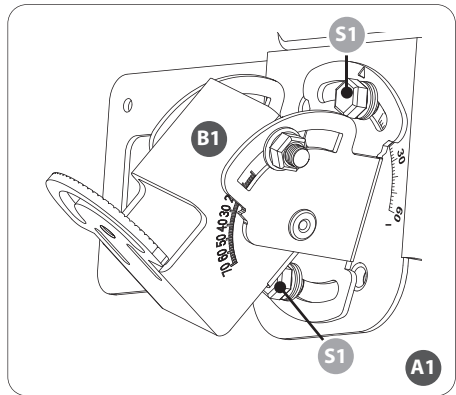
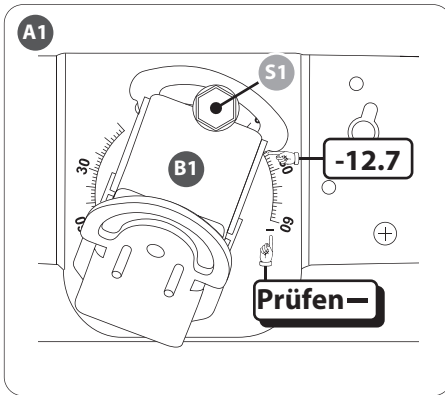
Um die antenne zu montieren, müssen sie die richtige schrägstellung (Skew), elevationwinkel (Elevation) und den azimutwinkel mit hilfe der tabelle auf der rückseite des handbuchs ermitteln. Wenn sie Ihren ort nicht finden können, nehmen sie bitte die Informationen des nächstgelegenen ortes. Dieses handbuch wird Ihnen die montage am beispiel des empfangs des ASTRA1 satelliten in der region von brest in frankreich zeigen. Der winkelinformation für die region brest: schrägstellung :  $-12.7^\circ$ , elevationwinkel :  $30^\circ$ , azimutwinkel :  $149.6^\circ$

## Schritt 3: Zusammenbau

### 1) Schrägstellung einstellen

- Winkelhalterung (B1) und antennen hauptteil (A1) verbinden

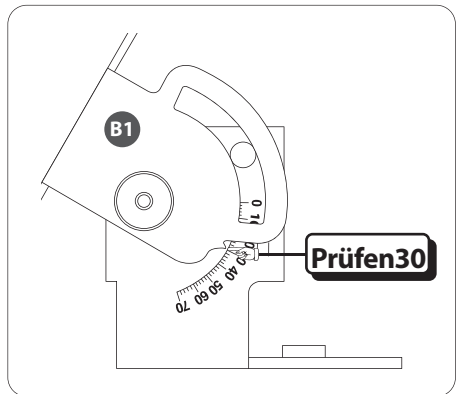
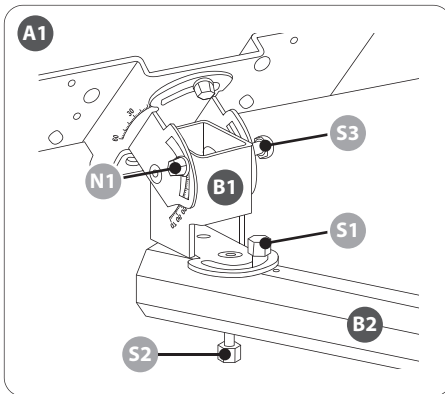
Winkelhalterung und antennen hauptteil durch schraubeneinstellung auf winkel -12.7 einstellen



### 2) Elevationwinkel einstellen

- Antennen hauptteil (A1) und hauptstütze (B2) verbinden

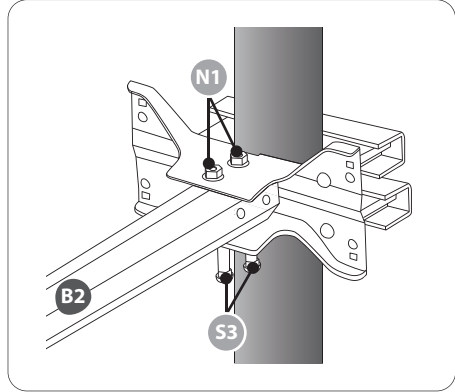
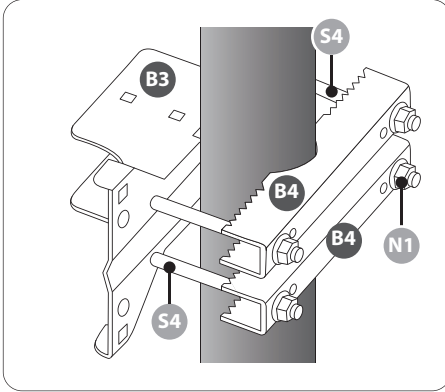
Gelenk winkel verbindung und hauptstütze. für die empfindliche abstimmung und für den azimuth-winkel, fixieren sie den. bolzen und die mutter nicht zu fest.



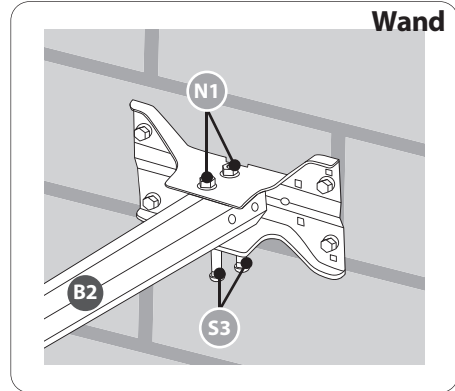
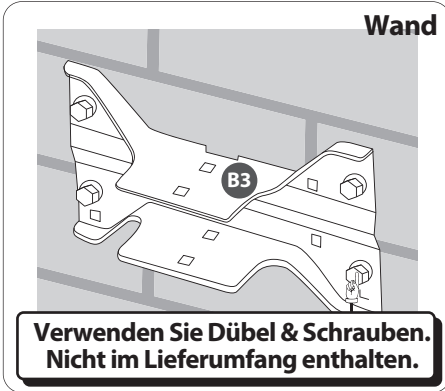
## Schritt 4: Wahl der installation

Wählen sie die gewünschte montagetyp unter den in dem paket enthaltenen varianten und stellen sie sicher, dass die richtigen komponenten verwendet werden, um antenne und halterung zu montieren. (siehe abb.)

### 1) Balkonklammer-typ

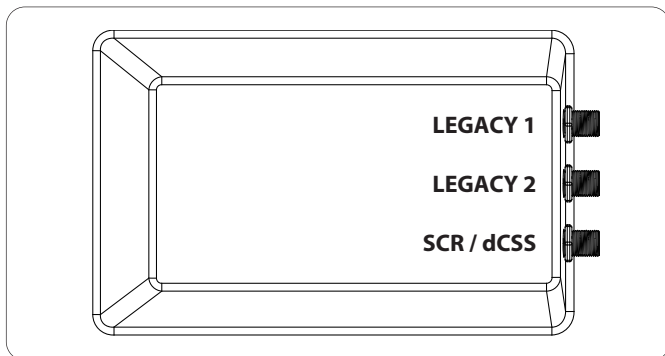


### 2) Wandmontage-typ



## Schritt 5: SELFSAT-H50dCSS installation und gebrauch

Da die SELFSAT-H50dCSS antenne ein dCSS-ausgang und zwei legacy-ausgänge zur verfügung, kann der benutzer verschiedene ports auf der STB-typen wählen (dCSS kompatiblen oder normalen). Es ist dafür zu sorgen, dass ein normalen STB dem Legacy-ausgang angeschlossen ist, und dCSS-kompatibler STB ist dem dCSS- / SCR-ausgang anzuschließen, indem auf das folgende bild zu verweisen.



### Hinweis

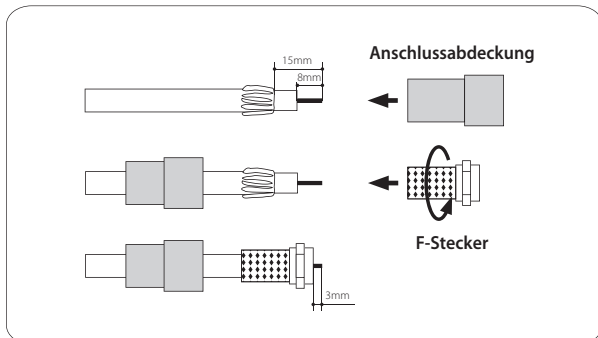
SELFSAT-H50dCSS antenne umfassen schutzkappen für die ausgänge. Bitte setzen sie die schutzkappe auf die ausgänge, um das eindringen von wasser über die ports zu verhindern. Auch wenn sie den anschluss verwenden, behalten sie bitte den die schutzkappe.

### 1) Anschliessen der SELFSAT-H50dCSS antenne an die STB

Sobald sie die antenne montiert haben, ist der nächste schritt, sie mit den STB zu verbinden. Um in der lage zu sein, ihre lieblings-satelliten-programme zu sehen, müssen sie ihre satelliten-antenne und einen STB mit einem kabel zu verbinden. Das kabel zwischen der antenne und dem STB sollte nicht länger als 30 m sein, da die qualität des signals mit der länge abnimmt. Die verwendung eines langen oder schlechten kabels und / oder unisolierten buchsen können zur absenkung des signalpegels führen. Wäre es vorzuziehen, ein RG6 koaxialkabel (HF 17VATC oder 19VATC kabel) zu verwenden, um signalverlust zu minimieren.

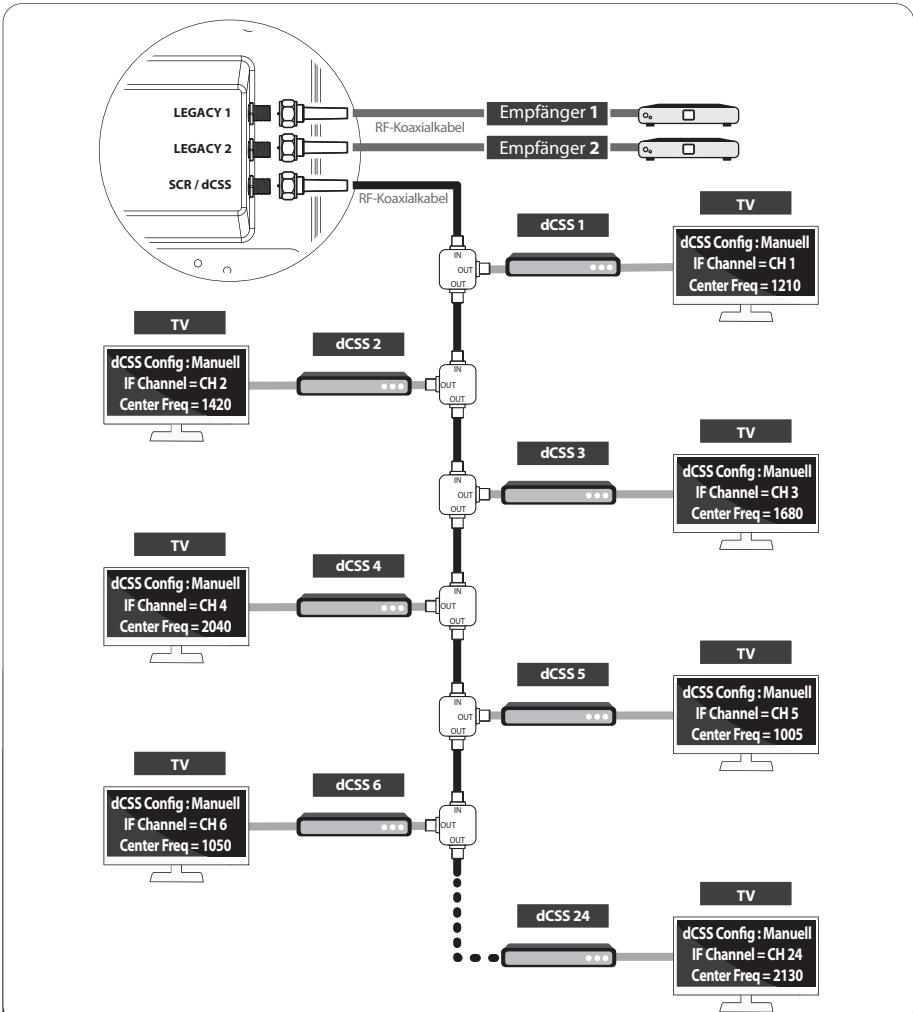
Schließen Sie einfach das HF-Koaxialkabel aus der SELFSAT-H50dCSS Antenne an Ihren STB.

- Wie bereitet am das kabel vor



## 2) Wie wird das Kabel mit der Antenne und der STB zu verbinden?

Die zwei legacy-Ausgänge bieten zusätzliche Flexibilität für den Anschluss von normalen STB. Der dCSS Ausgangs-Port ist nur für Verbindungen zu dCSS-kompatiblen STB geeignet.



### Hinweis

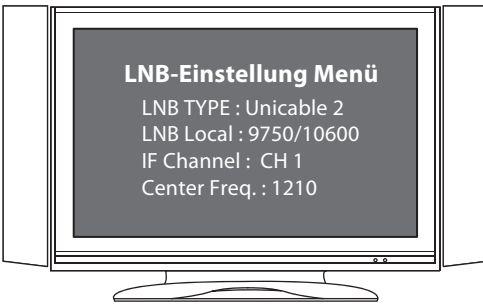
Jeder dCSS-STB muss unterschiedliche IF-Kanäle und Mittenfrequenz aus den anderen einrichten.

### Hinweis

Für mehrfache Verwendung von dCSS, ist Splitter erforderlich und ist nicht im Paket enthalten.

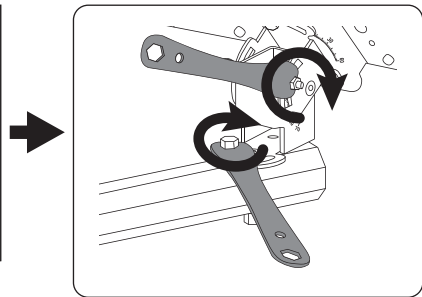
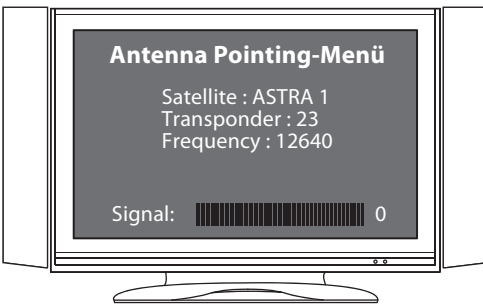
### 3) Satelliten-suche und der befestigung des antennen

- ① Sobald alles angeschlossen ist, schalten sie den fernseher/STB ein.  
Wählen sie das menü für die antennenausrichtung auf Ihrer STB aus.
- ② Einstellung abhängig vom STB-Typ
  - a. Einstellung des traditionellen STB  
Das LNB-Einstellungsmenü auf Ihrem STB auswählen.  
Den LNB-Typ auf Universal einstellen und Frequenz bestätigen.
  - b. Einstellung des dCSS-kompatiblen STB  
Das LNB-Einstellungsmenü auf Ihrem dCSS STB auswählen.  
Den LNB-Typ zum dCSS-Einstellung (Unicable2 oder JESS) einstellen und den IF-Kanal sowie die Mittenfrequenz wie unten bestätigen.  
Falls die Zahlen unterschiedlich sind, sind die wie abgebildet zu ändern.



IF Frequenzliste	
CH01 1210 MHz	CH13 1520 MHz
CH02 1420 MHz	CH14 1565 MHz
CH03 1680 MHz	CH15 1610 MHz
CH04 2040 MHz	CH16 1725 MHz
CH05 1005 MHz	CH17 1770 MHz
CH06 1050 MHz	CH18 1815 MHz
CH07 1095 MHz	CH19 1860 MHz
CH08 1140 MHz	CH20 1905 MHz
CH09 1260 MHz	CH21 1950 MHz
CH10 1305 MHz	CH22 1995 MHz
CH11 1350 MHz	CH23 2085 MHz
CH12 1475 MHz	CH24 2130 MHz

- ③ Die signalstärke und qualität sind auf dem fernsehbildschirm dargestellt und werden schwanken und die farbe wechseln, je nach einstellung & bewegung der antenne während sie die ausrichtung vornehmen (azimutwinkel, elevationwinkel).  
Die balkenhöhe zeigt die stärke des signals an und die farbe die signalempfangsqualität des gewählten satelliten.



#### Hinweis

Für mehrere einstellungen dCSS STB, nur EIN mittenfrequenz kann mit jeder STB gleichzeitig verwendet werden.

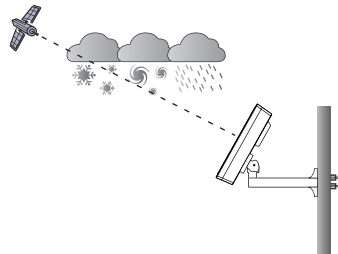
# Störungsbehebungs

Wenn das Signal nicht gefunden wird, dann stellen Sie sicher, dass die Anweisungen in der STB-Bedienungsanleitung und der Antennen-Bedienungsanleitung genau befolgt worden sind, dazu prüfen Sie bitte Folgendes:

- Stellen Sie sicher, dass alle Kabelverbindungen korrekt sind und jede Verbindung sitzt / richtig angezogen ist.
- Überprüfen Sie das Innere der einzelnen Steckverbinder auf Schmutz oder mögliche Kurzschlüsse des Gehäuses oder der Abschirmung.
- Verifizieren Sie, dass Azimut-, Elevation- und Schrägstellung winkel(Skew) zu Ihrer Postleitzahl passen.
- Vergewissern Sie sich, dass die skew und Erhebungsanzeiger richtig zu den Skalen ausgerichtet sind. Benutzen Sie nicht die Unterlegscheiben oder Schrauben als Referenz.
- Vergewissern Sie sich, dass die skew nicht von der empfohlenen Einstellung für den Ort der Antenne abweicht.
- Entfernen Sie Fernsehgerät-spezifische Teile, wie zum Beispiel TV-Splitter, usw.; verringern Sie den Aufbau auf die grundlegendsten Verbindungen, wie in dieser Anleitung beschrieben. Solche Komponenten können möglicherweise nicht zusammen mit dem Satellitensignal betrieben werden und könnten sich in einer Wand befinden, wo sie nicht zu sehen sind. Wenn Sie Zweifel haben, legen Sie ein RG-6 Kabel direkt zu Ihrem STB.
- Stellen Sie sicher, dass keine Hindernisse das Signal blockieren (Bäume, Gebäude, Fenster, Ecken oder Dachüberhänge, Ihr Körper oder Ihre Hände)
- Ein RG-6 Kabel mit Kupferkernleiter wird sehr empfohlen, da es einen viel geringeren Spannungsabfall als ein RG-6 Kabel mit kupferbeschichteten, Stahlkernleiter hat.
- Ein normales RG-59 Kabel verursacht einen zu großen Spannungs- und Signalabfall; es kann nicht zur Weiterleitung des Satellitensignals verwendet werden. RG-6 Koaxialkabel müssen benutzt werden.
- Einige Zusatzkomponenten aus dem Zubehörmarkt können sich anders als beworben verhalten. Entweder funktionieren sie nicht oder verursachen einen zusätzlichen Spannungsabfall und Signalabschwächung. Entfernen Sie solche Komponenten, gehen Sie zurück zu den grundlegendsten Verbindungen, wie in dieser Anleitung beschrieben.
- Vergewissern Sie sich, dass das Satellitenkabel mit dem „Sat In“ Anschluss verbunden ist und nicht mit dem „Antenna In“ Anschluss. Der „Antenna In“ Anschluss auf der Rückseite des STB dient dem Anschluss einer „Off-Air“-Antenne oder dem Kabelfernsehen.
- Falls dies alles korrekt erfolgt ist, aber immer noch kein Signal empfangen wird, verändern Sie den Erhöhungswinkel der Antenne leicht ( $\pm 2^\circ$ , dann  $\pm 4^\circ$  ausgehend von den geforderten Einstellungen) und wiederholen Sie den Vorgang.
- Stellen Sie sicher, dass die Access-Karte Ihres STB komplett im Access-Karten-Schacht eingeführt ist und die Ausrichtung stimmt.

## Signal Verlust / Regen-Verblassung

- Das Satellitensignal kann aufgrund eines ungewöhnlich starken Regensfalls vorübergehend unterbrochen werden. Eine optimal abgestimmte Antenne zusammen mit einem kurzen Kabel minimiert die Wahrscheinlichkeit von Regen-Verblassung.
- Stellen Sie sicher, dass die Antenne ordnungsgemäß montiert ist, um Abweichungen durch starken Wind zu verhindern.
- Schneemassen auf der Antenne können die Satellitensignalarstärke verringern; Schnee sollte so bald wie möglich entfernt werden.
- Blattwerk, das in die Sichtlinie des Satelliten wächst, kann zu allmählichem Bildverlust führen.



### Montage mit einem langen kabel

- Für Installationen, in denen das RG 6-Kabel von dem STB zum LNB fährt und übersteigt weit mehr als 30m (45m oder mehr), wie an einem kommerziellen oder Mehrzweckgebäude anzutreffen, ist eine unterstützende Kraft zur Stabilisierung erforderlich.
- Zusätzlich benötigen Sie auch einen zusätzlichen RF-Signalverstärker, um den Signalpegelverlust zu kompensieren.

Ansonsten wird Ihre Antenne und STB nicht korrekt arbeiten und kann bei ungünstigem Wetter häufig ausfallen. Kontaktieren Sie einen Fachmann bei solchen Montagen.





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## Qu'est-ce que SELFSAT-H50dCSS ?

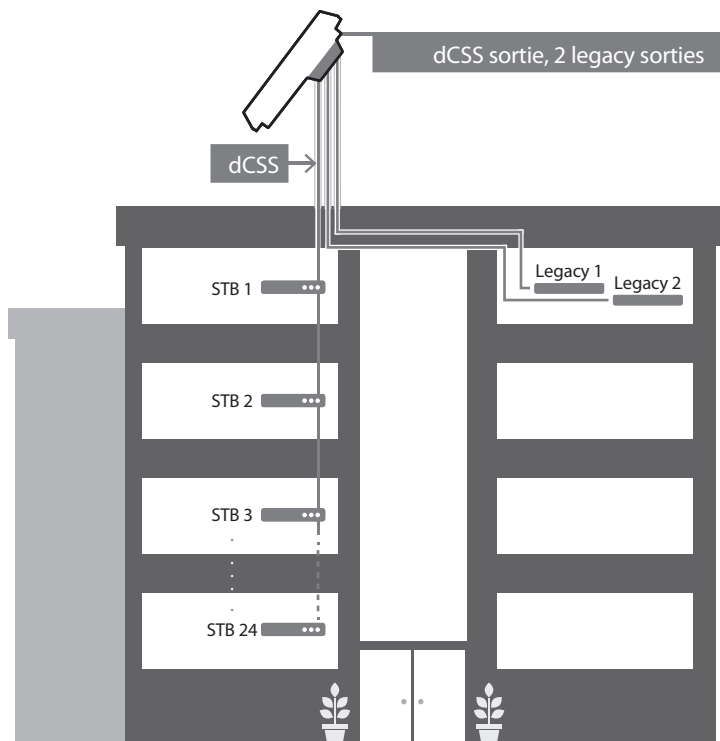
SELSAT Antenne série est une antenne satellite à double polarisation linéaire, elle peut capter le signal des satellites majeurs et remplace votre ancienne parabole. Petite, discrète et facile d'utilisation, elle peut être installée en quelques minutes et également être utilisée comme antenne portable pour toutes réceptions satellites.

SELSAT antenne série peut être utilisé aussi bien pour la réception de chaînes en clair qu'en crypter (ces dernières exigeant la souscription d'un abonnement auprès d'un opérateur); Elle peut aussi recevoir toutes les chaînes Haute Définition avec une qualité d'image supérieure.

SELSAT-H50dCSS peut fournir des programmes complets d'un satellite à plusieurs utilisateurs via un câble coaxial. Les deux sorties Legacy LNB supplémentaires offrent une flexibilité supplémentaire pour la connexion de la STB traditionnelle.

Ceci est également une solution idéale qui est capable de fonctionner sans l'utilisation d'un commutateur multiple, ceci peut aller téléviseurs numériques ou STB différents.

Veuillez svp lire les instructions ci-dessous pour installer correctement l'antenne.



### Remarque

Pour l'utilisation multiple de dCSS STB, vous auriez besoin d'un ou de plusieurs répartiteurs, ceci n'est pas inclus dans la boîte.

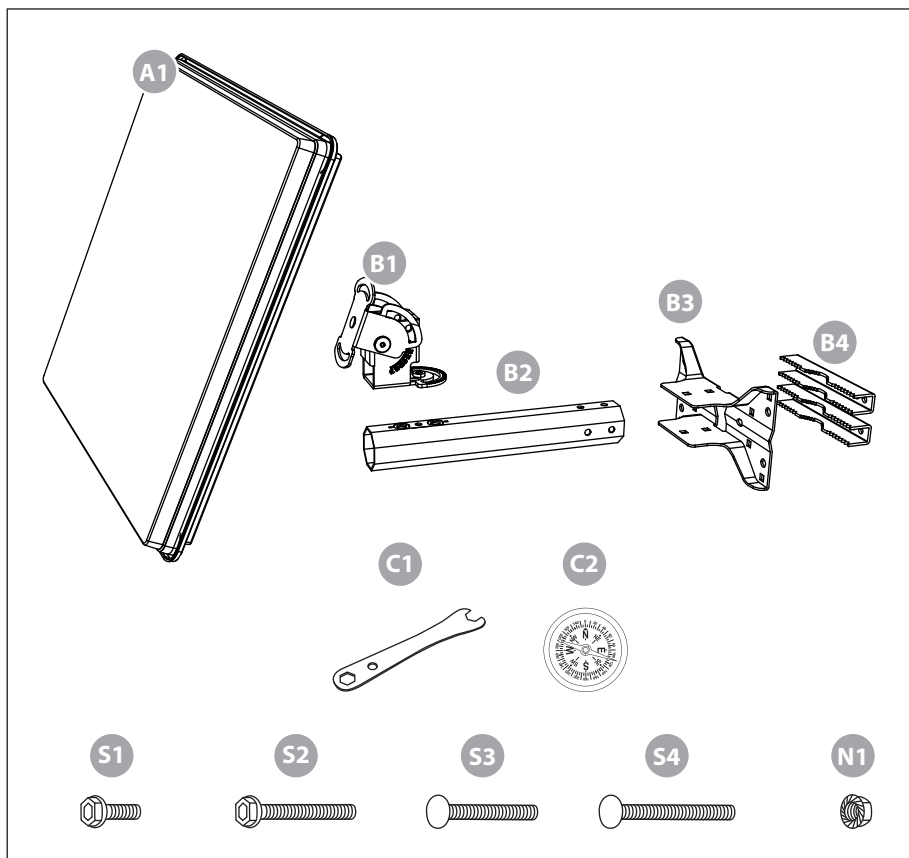
# Consignes de sécurité

- Avant d'utiliser ce produit, veuillez lire attentivement ce manuel et suivre à la lettre toutes les instructions d'installation, de montage et d'orientation.
- Les instructions doivent être respectées afin d'éviter tout problème technique.
- Tout champ électrique ou magnétique situé près du SELFSAT-H50dCSS peut entraîner une mauvaise réception voire même couper complètement le signal.
- Ne percez pas la protection en plastique de l'antenne qui la rend étanche et la protège de l'humidité.
- Manipulez l'antenne avec précaution car tout choc risque d'endommager l'électronique.
- N'ouvrez pas le cache de protection, toute tentative de réparation par une personne non qualifiée peut être dangereuse et entraîner l'annulation de la garantie.
- Tout obstacle (bâtiments, arbres, etc...) bloquera la réception du signal provenant du satellite vers l'antenne.
- Ne peignez pas et n'ajoutez aucune substance sur le cache de protection de l'antenne, cela bloquera la réception du signal provenant du satellite.
- Le câble reliant l'antenne au STB ne devrait pas excéder 30m car cela diminuerait la qualité du signal.
- L'utilisation de prise non isolée entraînera une perte du niveau de signal.
- N'oubliez pas d'ajuster l'antenne et la console à la polarité croisée.
- Serrez toutes les vis de l'antenne lorsque vous avez terminé les réglages.
- Ce produit contient un port dCSS avec deux ports legacy, il est interdit d'ajouter, de modifier ou de modifier la LNB.
- Pour obtenir des renseignements plus précis quant aux indications ci-dessus ou pour toute information, veuillez contacter votre détaillant ou le service après-vente.

## AVERTISSEMENT

Les antennes installées de façon incorrecte ou sur une structure inadéquate sont fortement susceptibles d'entraîner des dommages. Ces dommages peuvent être très importants voire mortels. Le propriétaire et l'installateur assument l'entière responsabilité de l'installation sensée supporter toutes les charges (poids, vent et glace) et de l'étanchéité aux fuites. En raison de nombreuses demandes dont les tenants sont inconnus, le fabricant n'acceptera pas que sa responsabilité soit engagée pour tout dommage causé par un système satellite.

# Contenu de la boîte



A1 Corps de l'Antenne

B1 Equerre de Support

B2 Support Principal

B3 Support de Fixation A

B4 Support de Fixation B

C1 Clé à Boulon

C2 Boussole

S1 Ancre Hexagonal M6x18 SEMS2 (x3)

S2 Ancre Hexagonal M6x50 SEMS2 (x1)

S3 Vis à Tête Bombée à Collet Carré M6x50 (x3)

S4 Vis à Tête Bombée à Collet Carré M6x75 (x4)

N1 Ecrou à Collet carré M6 (x7)

# Comment l'installer?

En suivant les instructions pas à pas, vous pouvez installer facilement SELFSAT-H50dCSS vous-même ou faire appel à un installateur d'antenne professionnel.

Avant d'installer votre antenne, assurez-vous que la boîte SELFSAT-H50dCSS contient toutes les pièces listées ci-dessus dans la rubrique « Contenu de la boîte ». En cas de pièce manquante, veuillez contacter votre distributeur.

## Etape 1 : Où l'installer?

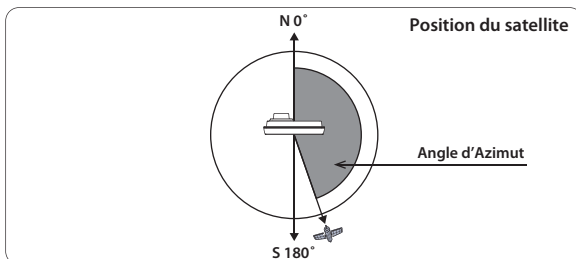
Afin de recevoir un signal provenant du Satellite, SELFSAT-H50dCSS doit être installé dans un espace à ciel ouvert (à l'extérieur de la maison ou de l'appartement), en direction du satellite vers le sud. Vous aurez besoin d'une boussole afin d'orienter avec exactitude SELFSAT-H50dCSS vers le satellite.

### Remarque

Veuillez vous référer à la table des angles d'Azimut que vous trouverez dans les dernières pages de ce manuel.



< Boussole >



### Remarque

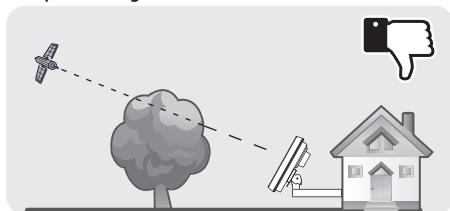
Afin d'assurer une lecture précise de la boussole, restez éloignés de grands objets métalliques, plus particulièrement des câbles électriques, et effectuez de nombreuses lectures.

Assurez-vous qu'il n'y ait aucun obstacle susceptible de diminuer la qualité de réception du signal devant SELFSAT-H50dCSS, tels que des bâtiments ou des arbres (gardez cependant à l'esprit que les arbres vont pousser et qu'ils pourraient alors bloquer le signal).

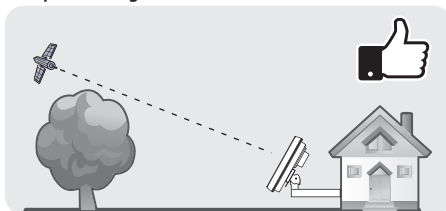
Afin d'être en mesure de fixer et d'installer facilement votre antenne, choisissez un endroit aisément accessible, sans danger potentiel pour l'installation.

Réfléchissez à la façon dont vous pourriez passer votre câble de la SELFSAT-H50dCSS jusqu'à votre décodeur discrètement. L'antenne ne doit pas être trop éloignée de votre STB ; un câble de plus de 30 mètres pourrait diminuer la qualité du signal.

### Réception du signal de Mauvaise Qualité



### Réception du signal de Bonne Qualité



## Etape 2 : Pour information

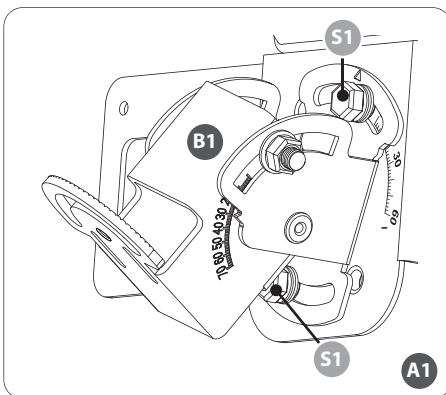
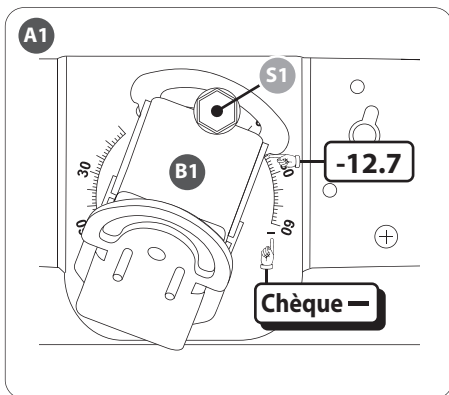
Afin d'installer correctement votre antenne, vous devez trouver les angles d'inclinaison, azimut et élévation en se référant au tableau à la fin du manuel. Si vous ne trouvez pas dans la liste votre ville exacte, merci de choisir la ville la plus proche qui est citée dans le tableau. Nous allons vous donner un exemple d'installation pour recevoir le Satellite ASTRA1 dans la région de Brest en France, les angles fournis selon le tableau sont, inclinaison :  $-12,7^\circ$ ; Elévation :  $30^\circ$  et Azimut :  $149,6^\circ$  ;

## Etape 3 : Comment assembler?

### 1) Fixer l'inclinaison

- joindre le bras de fixation(B1) carre a l'arriere de l'antenne(A1)

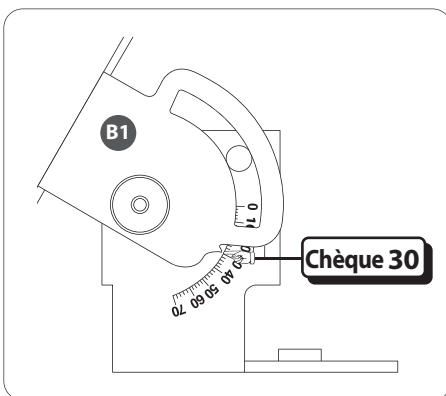
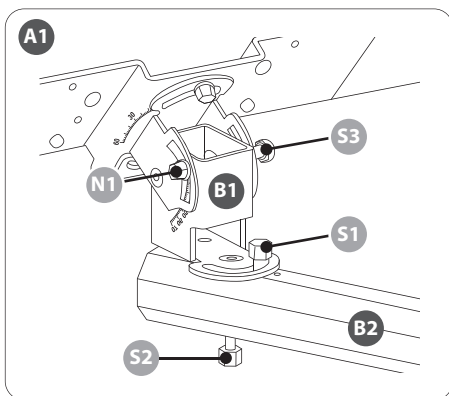
Visser avec la vis S3 le bras à l'antenne selon le schéma ci-dessous, tout en respectant bien l'angle d'inclinaison de votre ville (selon le tableau à la fin du manuel), dans notre exemple c'est  $-12,7^\circ$ .



### 2) Fixer l'angle d'élévation

- entre l'antenne (A1) et le support de fixation (B2)

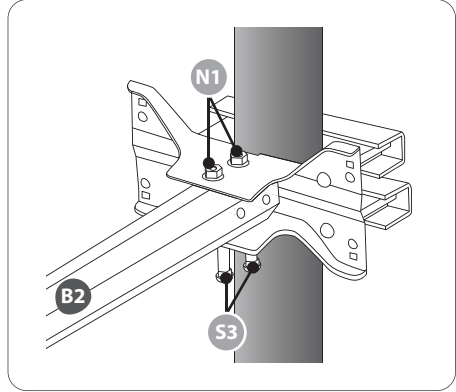
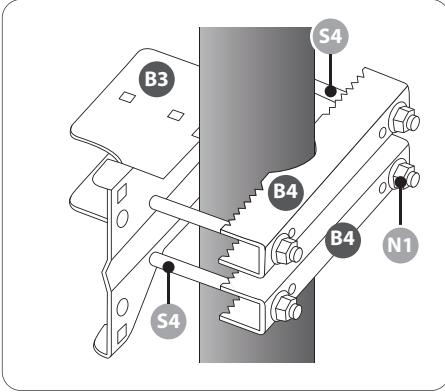
Soulever ou baisser délicatement l'antenne afin d'atteindre l'angle d'élévation voulu selon le schéma ci-dessous, ne pas fixer à ce stade encore avec la vis et l'écrou.



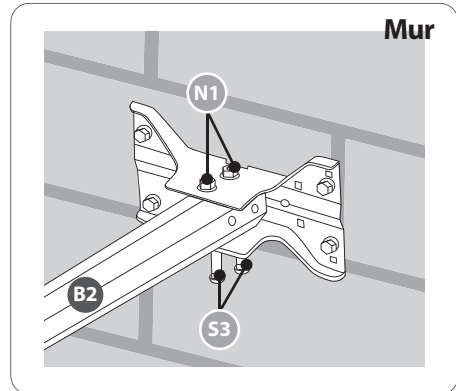
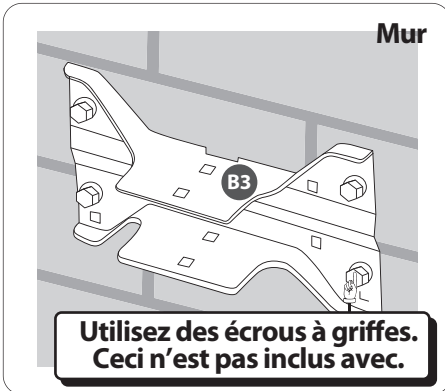
## Etape 4 : Choix d'Installation

Sélectionnez le type de montage préféré et assurez-vous que les bonnes composants sont utilisés pour assembler l'antenne et le support comme marqué dans les images.

### 1) Type fixation sur balcon



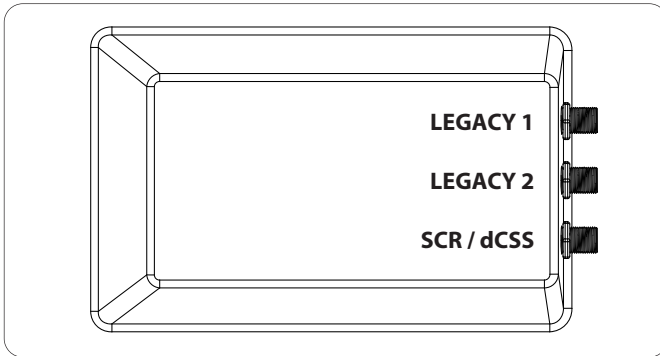
### 2) Type montage sur mur





## Etape 5: SELFSAT-H50dCSS installation et mise en marche.

Comme l'antenne SELFSAT-H50dCSS fournit une sortie dCSS et deux sorties traditionnelles, l'utilisateur peut sélectionner différent connecteur selon le modèle de STB ( dCSS compatible ou normaux). Assurez-vous de connecter les STB traditionnels à la sortie Legacy et de connecter la sortie STB compatible dCSS à la sortie dCSS / SCR en faisant référence à l'image ci-dessous.



### Remarque

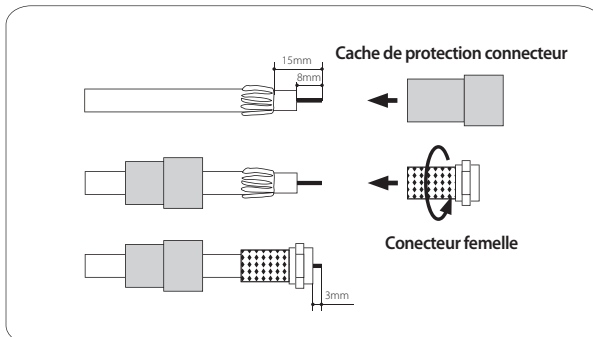
L'antenne SELFSAT-H50dCSS comprend des capuchons de protection pour les sorties des ports. En cas de non usage des sorties, veuillez s'il vous plaît utilisés ses capots pour empêcher la pénétration de l'eau. Attention à ne pas les perdre.

### 1) Connecter l'antenne SELFSAT-H50dCSS au STB.

Une fois que vous avez installé l'antenne dans un espace à champs ouvert ou monté la façon dont vous voulez qu'il soit, l'étape suivante consiste à les relier tous ensemble. Afin d'être en mesure de regarder vos programmes satellites préférés, vous devez connecter votre antenne satellite à un STB avec un câble. Le câble entre l'antenne et le STB satellite ne doit pas dépasser 30m car cela diminuerait la qualité du signal. L'utilisation d'un câble long ou mauvais et / ou prises non isolés peuvent provoquer une diminution du débit de signal, il serait préférable d'utiliser un câble coaxial RG6 ( HF 17VATC ou câble 19VATC ), afin de minimiser la perte de signal.

Il suffit de connecter le câble coaxial RF de l'antenne SELFSAT-H50dCSS à votre STB.

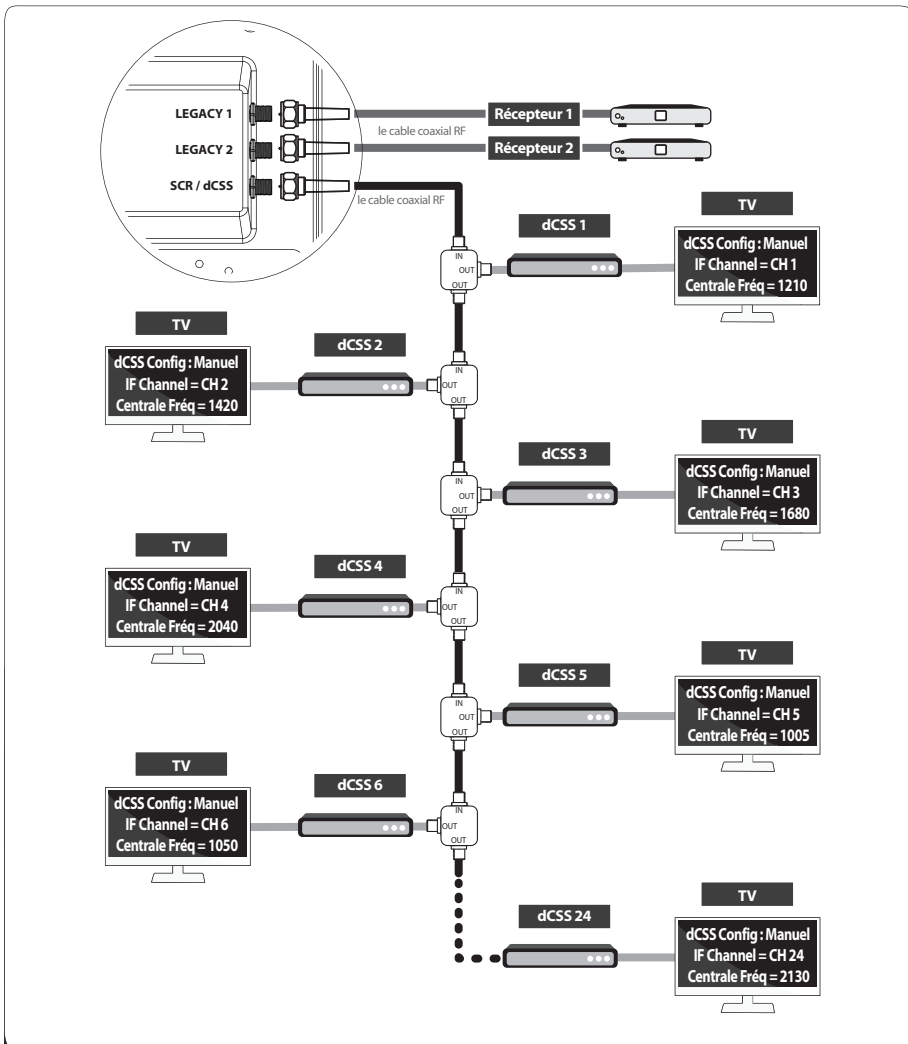
#### - Comment préparer le câble ?



## 2) Comment connecter le câble à l'antenne et le STB?

Les deux sorties traditionnelles offrent LNB flexibilité supplémentaire pour le raccordement des STB normaux.

dCSS est utilisé uniquement avec des boîtes de dCSS compatible.



### Remarque

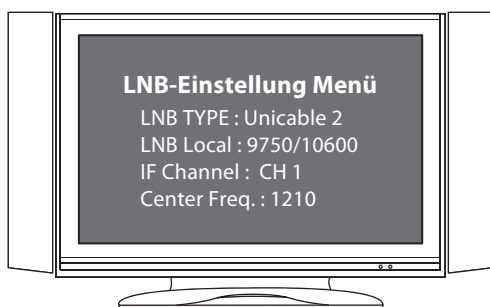
Chaque dCSS STB doit configurer différents canaux IF et la fréquence centrale à partir des autres.

### Remarque

Pour une utilisation multiple de dCSS, un splitter(s) est requis et le splitter n'est pas inclus dans l'emballage.

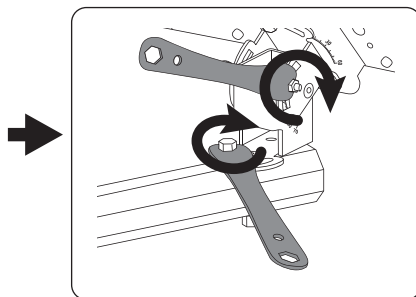
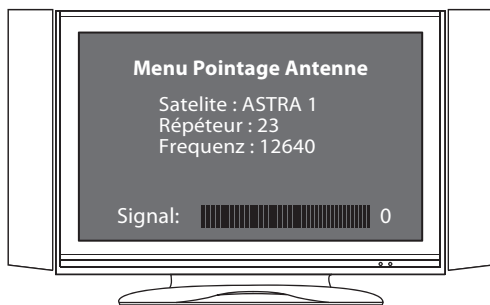
### 3) Satellite recherche et fixer l'antenne

- ① Lorsque tout est connecté, allumez la TV et le STB.  
Sélectionnez le Menu Pointage de l'Antenne sur votre STB.
- ② Le réglage est en fonction du type de STB
  - a. Réglage de la STB traditionnelle  
Sélectionnez le menu de réglage LNB sur votre STB.  
Réglez le type LNB sur Universal et confirmez la fréquence.
  - b. Réglage du STB compatible dCSS  
Sélectionnez le menu de réglage LNB de votre dCSS STB.  
Réglez le type LNB sur dCSS (Unicable2 ou JESS) et confirmez le canal IF et la fréquence centrale comme ci-dessous.  
Si les chiffres sont différents, modifiez-les comme indiqué sur l'image.



IF liste de fréquence	
CH01 1210 MHz	CH13 1520 MHz
CH02 1420 MHz	CH14 1565 MHz
CH03 1680 MHz	CH15 1610 MHz
CH04 2040 MHz	CH16 1725 MHz
CH05 1005 MHz	CH17 1770 MHz
CH06 1050 MHz	CH18 1815 MHz
CH07 1095 MHz	CH19 1860 MHz
CH08 1140 MHz	CH20 1905 MHz
CH09 1260 MHz	CH21 1950 MHz
CH10 1305 MHz	CH22 1995 MHz
CH11 1350 MHz	CH23 2085 MHz
CH12 1475 MHz	CH24 2130 MHz

- ③ Le niveau et la qualité du signal sont indiqués sur l'écran de TV ; ils fluctueront et changeront de couleur en fonction du réglage et du mouvement de l'antenne pendant que vous serez en train de pointer et de constater (azimut, angle d'élévation et angle de déflexion).  
Le niveau indique la puissance du signal et la couleur correspond à la qualité de réception du signal émanant du satellite choisi.



#### Remarque

Pour plusieurs paramètres dCSS STB, une seule fréquence centrale peut être utilisée avec chaque STB en même temps.

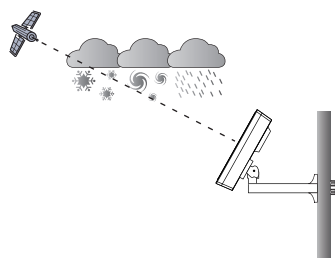
# Dépannage

Si aucun signal n'est perçu, assurez-vous que les manuels d'utilisation du STB et de l'antenne ont été suivis à la lettre. Vérifiez ce qui suit :

- Assurez-vous que toutes les connexions de câble sont correctes et que chaque connection est correctement placée et resserée.
- Vérifiez que l'intérieur de chaque connecteur de câble est propre.
- Vérifiez l'Angle d'Azimut, d'Élévation et d'Inclinaison correspondant à votre situation géographique par le biais du code de zone.
- Assurez-vous que le réglage d'Inclinaison n'est pas différent de celui recommandé en fonction de l'endroit où est fixée l'antenne.
- Assurez-vous que le réglage de l'inclinaison n'est pas modifié par rapport au paramètre recommandé pour l'emplacement de l'antenne.
- Un câble RG6 doté d'un solide conducteur en central en cuivre est fortement recommandé car il entraîne une chute de tension continue plus faible que le câble RG6 cuivré, à conducteur central en acier.
- Un câble standard RG59 entraîne trop de tension continue et de baisse de signal, il ne peut être utilisé pour faire passer le signal satellite. Utilisez un câble coaxial RG6.
- Nous n'encourageons pas l'utilisation de composants complémentaires immédiatement disponibles sur certains marchés. Ils pourraient ne pas fonctionner ou entraîner des chutes supplémentaires de tension continue et l'atténuation de l'amplitude du signal.
- Otez de tels composants et revenez aux connexions de base stipulées dans ce manuel puis revérifiez.
- Otez les composants spécifiques à la TV existants, tel que le répartiteur TV, etc ; réduisez l'installation aux connexions de base stipulées dans ce guide. De tels composants ne fonctionneront pas avec le signal satellite et ils peuvent se trouver dans le mur où vous ne pouvez les voir. Dans le doute, branchez directement le câble RG6 à votre STB.
- Assurez-vous qu'il n'y ait pas d'obstacle (arbres, bâtiments, fenêtres, coins ou avancées du toit, votre corps ou vos mains).
- Assurez-vous que le câble du satellite est connecté à la "prise d'entrée" du satellite et non à la "prise d'entrée" de l'Antenne. La prise d'entrée de l'Antenne à l'arrière du STB sert à l'entrée de l'antenne hors émission ou à l'entrée du câble TV.
- Si tout a été effectué correctement et qu'aucun signal n'est capté, changez légèrement le réglage de l'angle d'élévation de l'antenne ( $\pm 2^{\circ}\text{C}$ , puis  $\pm 4^{\circ}\text{C}$  par rapport aux réglages exigés) et recommencez la procédure.

## Perte de signal / Affaiblissement dû à la pluie

- Le signal du satellite peut être temporairement perdu cause d'inhabituelles chutes de pluie. Une antenne alignée de façon optimale et un câble le plus court possible minimise le risque d'"Évanouissement dû à la pluie".
- Assurez-vous que l'antenne est montée solidement afin d'éviter qu'elle ne soit soufflée et sortie de son alignement par un vent fort.
- L'accumulation de neige sur l'antenne peut réduire la puissance du signal du satellite ; la neige doit être balayée dès que possible.
- La croissance du feuillage dans la ligne de visée de l'antenne vers le satellite peut entraîner une perte progressive d'image.



### Installation Nécessitant un long câble

- Pour les installations où le câble RG 6 passe du STB au LNB dépasse de loin les 30m (45m ou plus), comme c'est le cas dans un immeuble commercial ou multi-logements, vous avez besoin de plus de puissance de soutien pour la stabilisation.
- Vous aurez aussi besoin d'un amplificateur de signal HF pour compenser la perte d'amplitude du signal sans quoi, votre antenne et votre STB ne fonctionneront pas correctement et pourront être fréquemment indisponibles en cas de météo défavorable. Pour ce qui est de telles installations, contactez un professionnel.



# Contenuto

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## Che cos'è l'antenna piatta SELFSAT-H50dCSS?

La serie di antenne SELFSAT è un'antenna satellitare tipo array a tromba con polarizzazione lineare doppia. Riceve il segnale dai maggiori satelliti e va a sostituire il solito piatto parabolico precedente.

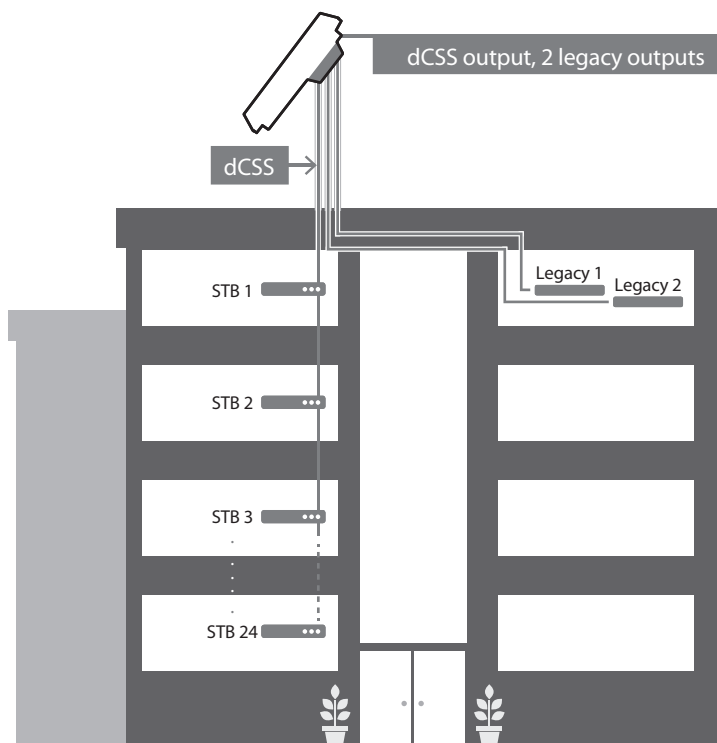
Questa antenna piccola, capace e semplice può essere installata in pochi minuti.

L'antenna piatta SELFSAT può essere utilizzata per la ricezione dei canali sia in chiaro che criptati (che richiedono un abbonamento con l'operatore); può anche ricevere tutti i canali ad alta definizione con una qualità dell'immagine superiore.

SELSAT-H50dCSS è in grado di fornire programmi completi da un satellite a utenti molteplici tramite un cavo coassiale. Le due uscite LNB aggiuntive legacy offrono flessibilità supplementare per il collegamento di STB tradizionale.

Questa è anche una soluzione ideale che permette di operare senza l'uso di un multi-switch diversi televisori o STB.

Si prega di leggere le seguenti istruzioni per installare l'antenna in modo corretto.



### Nota

Per l'uso multiplo della STB dCSS, è necessario uno o più splitter per operare SELFSAT-H50dCSS.

Lo splitter non è incluso nel pacchetto. Si prega di leggere con attenzione le seguenti istruzioni e il manuale della STB.

# Istruzioni di sicurezza

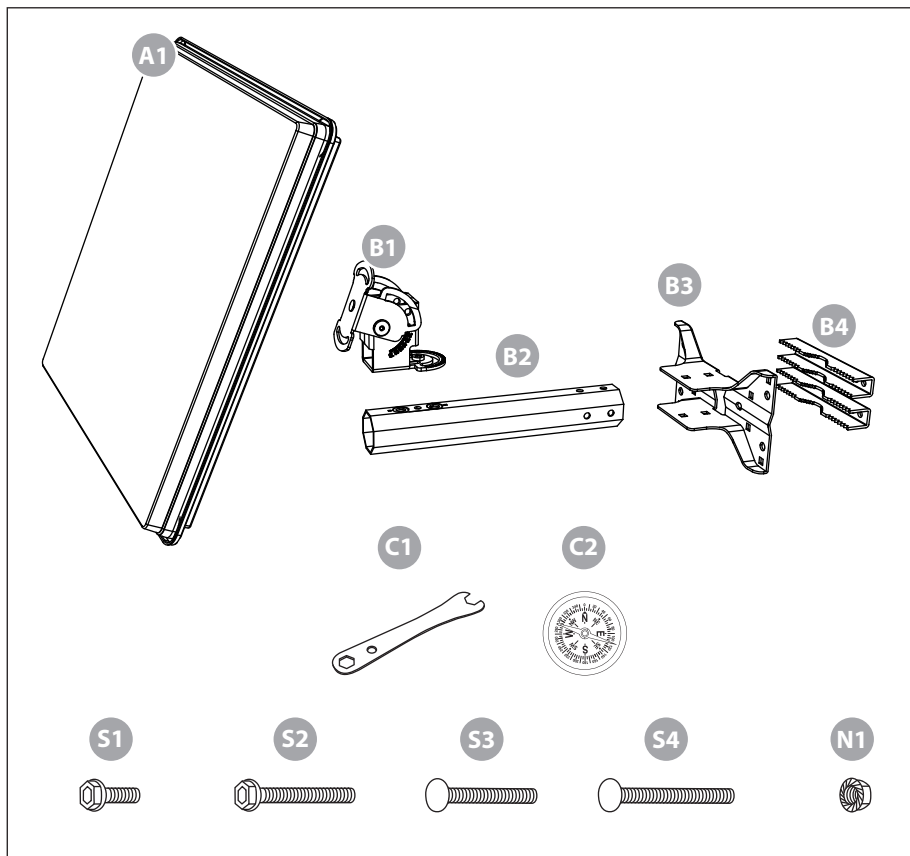
- Prima di utilizzare questo prodotto, leggere attentamente il presente manuale e seguire esattamente le istruzioni di installazione, montaggio e orientamento.
- Vi preghiamo di seguire le seguenti istruzioni per evitare ogni problema tecnico.
- Qualsiasi campo elettrico o magnetico vicino alla serie SELFAT-H50dCSS può causare una cattiva ricezione del segnale o addirittura comprometterla del tutto.
- Non perforare l'involucro di plastica dell'antenna, che la sigilla contro l'umidità
- Maneggiare l'antenna con cura: qualsiasi urto può danneggiarne i componenti elettronici.
- Non togliere l'involucro: qualsiasi tentativo di riparazione da parte di personale non qualificato può essere pericoloso e annullare la garanzia.
- Ostacoli come costruzioni, alberi ecc. possono bloccare la ricezione del segnale dal satellite.
- Non dipingere o aggiungere altre sostanze sull'antenna, poiché possono impedire la ricezione del segnale dal satellite.
- Il cavo tra l'antenna e il STB satellitare non deve eccedere i 30 m, pena la diminuzione della qualità del segnale.
- L'utilizzo di un jack non isolato può determinare perdita del segnale.
- Ricordarsi di regolare la cross polarizzazione dell'antenna e della staffa.
- Una volta effettuata la regolazione, stringere bene tutte le viti dell'antenna.
- Questo prodotto contiene una porta dCSS con due porte legacy, ed è formalmente vietato aggiungere, cambiare o modificare l'LNB.
- Per maggiori dettagli sui punti precedenti o per qualsiasi altra informazione contattare il rivenditore o direttamente il servizio clienti.

## ATTENZIONE

Le antenne non correttamente installate o installate in una struttura inadeguata sono facilmente danneggiabili dal vento Tali danni possono essere molto seri o addirittura mortali. Il proprietario e l'installatore sono pienamente responsabili del fatto che l'installazione sia strutturalmente adeguata per sopportare tutti i carichi (peso, vento e gelo) e adeguatamente sigillata contro dispersioni. Il costruttore non si riterrà responsabile per qualsiasi tipo di danno causato dal sistema satellitare dovuto ad una non corretta installazione



# Contenuto



**A1** Antenna

**B1** Staffa angolare

**B2** Supporto principale

**B3** Staffa di posizione B

**B4** Staffa di posizione A

**C1** Chiave

**C2** Bussola

**S1** Vite M6x18 SEMS2 (× 3)

**S2** Vite M6x50 SEMS2 (× 1)

**S3** Bullone a testa tonda larga con quadro sottotesta M6x50 (× 3)

**S4** Bullone a testa tonda larga con quadro sottotesta M6x75 (× 4)

**N1** Dado flangiato M6 (× 7)

# Come installarla?

Seguendo passo a passo le istruzioni è possibile installare con facilità il SELF-SAT-H50dCSS da soli.

Prima di installare l'antenna verificare che la scatola del SELF-SAT-H50dCSS contenga tutti gli elementi citati nel "Contenuto della confezione". Nell'eventualità di parti mancanti, contattare il rivenditore.

## Passo 1: Dove installarla?

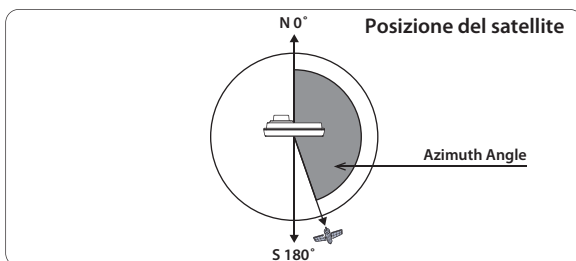
Per ricevere il segnale dal satellite, il SELF-SAT-H50dCSS va installato in uno spazio aperto (fuori casa/ appartamento) nella direzione del satellite, verso l'equatore, pertanto, sarà necessaria la bussola per orientare esattamente il SELF-SAT-H50dCSS verso il satellite.

### Nota

Si prega di far riferimento alla tavola degli angoli di Azimut nelle ultime pagine del presente manuale.



< Bussola >



### Nota

Per garantire un'accurata lettura della bussola, tenersi lontani da grandi oggetti di metallo, nello specifico cavi elettrici, ed effettuare letture a più riprese.

Verificare che non vi siano ostacoli davanti al SELF-SAT-H50dCSS che possano diminuire la qualità della ricezione del segnale quali: costruzioni, alberi o altro (ricordarsi che gli alberi normalmente crescono e possono bloccare il segnale).

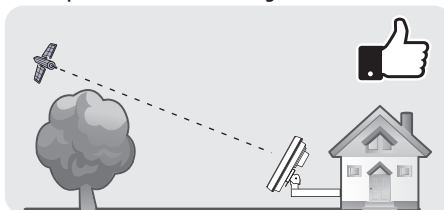
Per poter fissare e installare facilmente l'antenna si deve scegliere un'ubicazione accessibile e priva di potenziali pericoli per l'installazione.

È necessario riflettere a come far passare il cavo in modo discreto dal SELF-SAT-H50dCSS fino alla vostra set top box. L'antenna non va messa troppo distante dal ricevitore satellitare; un cavo lungo più di 30 metri diminuisce la qualità del segnale.

Scarsa qualità di ricezione del



buona qualità di ricezione del segnale



## Passo 2: Controllare le informazioni

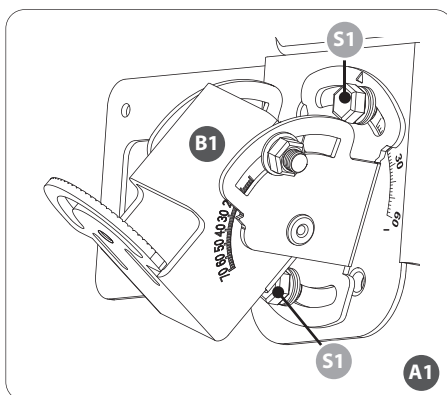
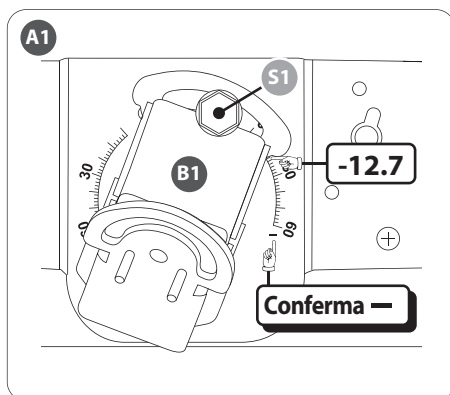
Per installare l'antenna dovete innanzitutto procurarvi lo skew, l'elevazione e l'azimut facendo riferimento alla tabella che si trova alla fine di questo manuale. Se non è possibile trovare la vostra posizione, si prega di fare riferimento alle informazioni della zona più vicina alla vostra posizione. Questo manuale vi farà l'esempio di installazione per ricevere il satellite ASTRA1 nella regione di Brest in Francia. Le informazioni angolazione per la regione di Brest è SK: -12,7, EL: 30, AZ: 149.6

## Passo 3: Assemblaggio parti

### 1) Impostazione dello Skew

#### - fissaggio della staffa angolare (B1) e del corpo antenna (A1)

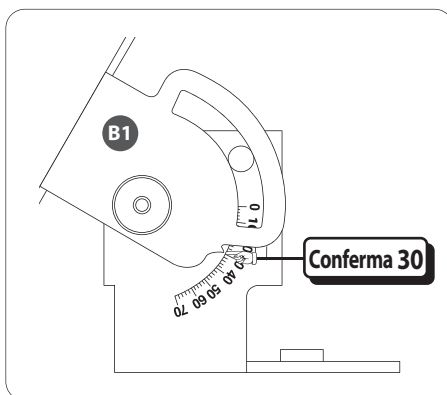
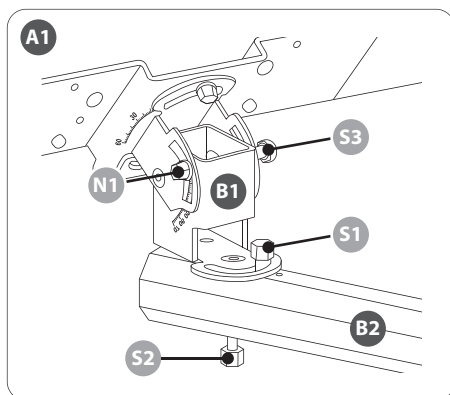
Unire la staffa angolare e il corpo antenna con la vite e impostare l'angolo di skew a -12.7.



### 2) Impostazione dell'elevazione

#### - fissaggio del corpo antenna (A1) al supporto principale (B2)

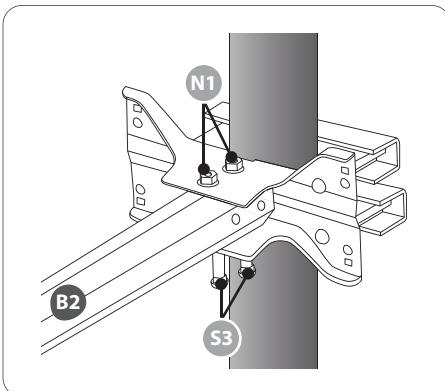
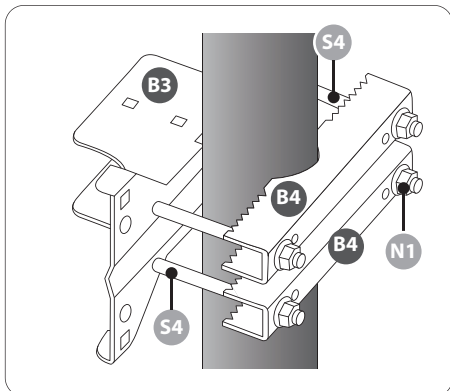
Fissare il corpo antenna comune al supporto principale. Al fine di regolare con precisione l'angolo di elevazione e di azimut non serrate troppo forte il dado e la vite.



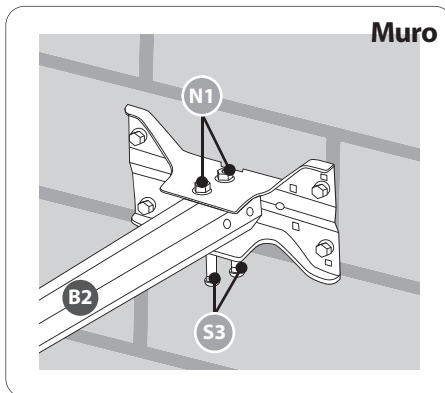
## Passo 4: Installazione della staffa di posizione

Selezionare il tipo di montaggio preferito tra quelli inclusi nel pacchetto e fare in modo che i componenti corretti vengano utilizzati per assemblare l'antenna e la staffa come dimostrato nelle immagini.

### 1) Tipo di fissaggio al balcone



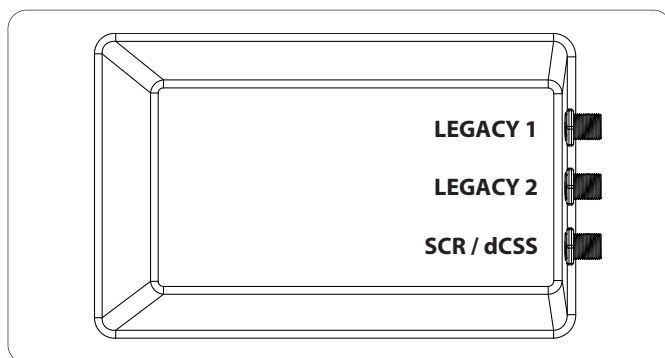
### 2) Tipo di installazione a muro



## Passo 5: SELFSAT-H50dCSS installazione e modo di utilizzo

Poiché l'antenna SELFSAT-H50dCSS possiede un'uscita dCSS e due uscite legacy, l'utente può selezionare un connettore differente sui vostri tipi di STB (compatibile con dCSS o normali).

Assicuratevi di aver collegato STB tradizionali all'uscita legacy e di aver collegato STB compatibili con dCSS all'uscita dCSS/SCR facendo riferimento all'immagine qui sotto.



### Nota

L'antenna SELFSAT-H50dCSS include cappucci di protezione per le uscite. Si prega di mettere il cappuccio di protezione sulle uscite quando non le porte vengono utilizzate per impedire la penetrazione di acqua.

Inoltre, quando si utilizza la porta, si prega di tenere a parte il cappuccio di protezione del connettore e non disperderlo per un uso ulteriore.

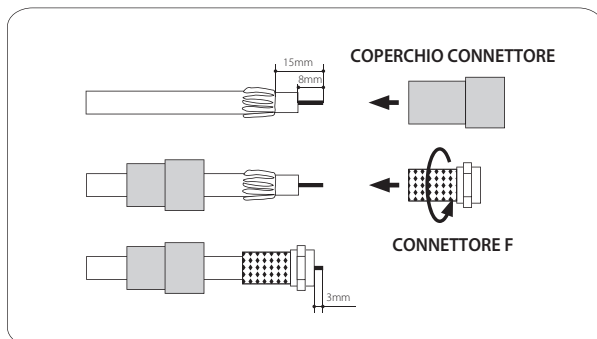
### 1) Collegare l'antenna SELFSAT-H50dCSS al STB

Dopo aver installato l'antenna in uno spazio aperto e averla montata nella maniera prescelta, procedere ad effettuare tutti i collegamenti.

Per poter vedere i propri programmi preferiti, collegare l'antenna satellitare al STB tramite cavo. Il cavo tra l'antenna e il STB non deve superare i 30m, pena la diminuzione della qualità del segnale. Un cavo troppo lungo o di cattiva qualità e dei jack non isolati possono comportare una perdita del livello del segnale; è preferibile utilizzare un cavo coassiale RG6 (cavo HF 17VATC o 19VATC) per ridurre al minimo la perdita di segnale.

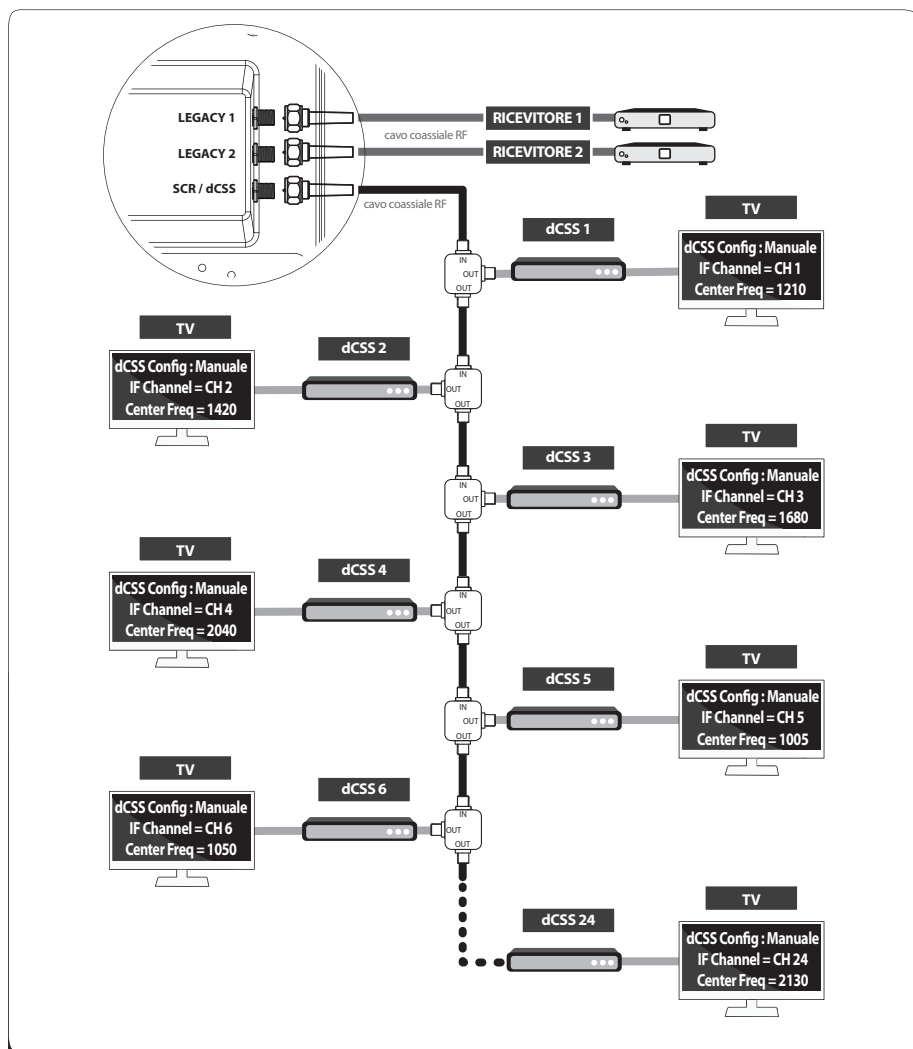
Basta collegare con il cavo coassiale RF l'antenna SELFSAT-H50dCSS al vostro STB.

#### - Come preparare il cavo?



## 2) Come collegare il cavo all'antenna e alla STB?

Le due uscite legacy LNB offrono una flessibilità aggiuntiva per il collegamento dei STB normali. La porta di uscita dCSS viene utilizzata solo per le connessioni alla STB compatibile con dCSS.



### Nota

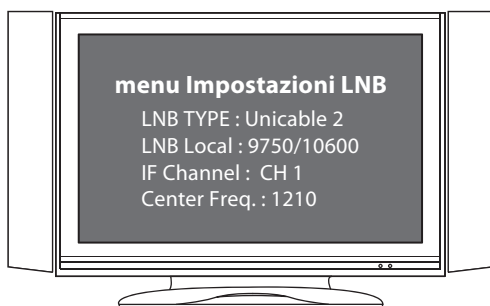
Per ogni STB dCSS bisogna impostare un canale IF e una frequenza centrale diversi dagli altri.

### Nota

Per l'utilizzo multiplo di dCSS serve(-ono) splitter, e lo splitter non è incluso nel pacchetto.

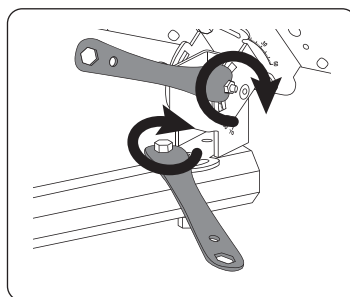
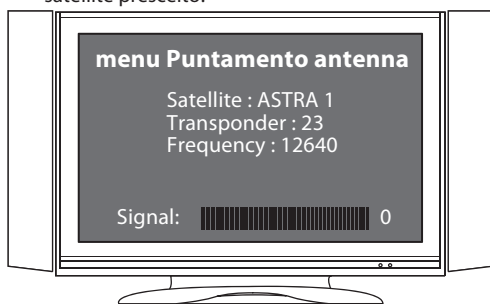
### 3) Ricerca del satellite e fissaggio dell'antenna

- ① Une fois toutes connectées, allumez le TV et le STB.  
Sélectionnez le menu de réglage antenne / LNB sur votre STB.
- ② Impostazione a seconda del tipo di STB
  - a. Impostazione di STB tradizionale  
Selezionare LNB impostando il menu sul vostro STB.  
Impostate il tipo di LNB a Universal e confermate la frequenza.
  - b. Impostazione di STB compatibile con dCSS  
Selezionare il menu di impostazione LNB sul vostro STB dCSS.  
Impostate il tipo di LNB all'impostazione dCSS (Unicable2 o JESS) e confermate il canale IF e la frequenza centrale come di seguito.  
Nel caso in cui i numeri sono diversi, cambiateli come mostrato sull'immagine.



IF lista di frequenza	
CH01 1210 MHz	CH13 1520 MHz
CH02 1420 MHz	CH14 1565 MHz
CH03 1680 MHz	CH15 1610 MHz
CH04 2040 MHz	CH16 1725 MHz
CH05 1005 MHz	CH17 1770 MHz
CH06 1050 MHz	CH18 1815 MHz
CH07 1095 MHz	CH19 1860 MHz
CH08 1140 MHz	CH20 1905 MHz
CH09 1260 MHz	CH21 1950 MHz
CH10 1305 MHz	CH22 1995 MHz
CH11 1350 MHz	CH23 2085 MHz
CH12 1475 MHz	CH24 2130 MHz

- ③ Il livello e la qualità del segnale sono indicati sullo schermo del televisore e oscilleranno e cambieranno colore in funzione della regolazione e del movimento dell'antenna mentre si sta puntando e trovando (azimut, angolo di elevazione).  
Il livello indica la potenza del segnale ricevuto mentre il colore indica la qualità del segnale dal satellite prescelto.



#### Note

Per impostazioni multiple dCSS STB, UNA SOLA frequenza centrale può essere utilizzata con ogni STB allo stesso tempo.

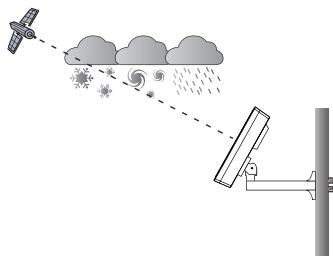
# Risoluzione dei problemi

Se il segnale non viene trovato e i manuali utente antenna e utente STB sono stati seguiti correttamente, effettuare i seguenti controlli:

- Verificare che tutte le connessioni dei cavi siano corrette e che ogni connessione sia correttamente alloggiata/fissata.
- Ispezionare l'interno di ogni connettore di cavo per spolverarlo o controllarlo che non vi siano possibili corti circuiti tra l'interno del connettore e la copertura.
- Verificare angoli di Azimut, Elevazione e Inclinazione in base al proprio CAP.
- Verificare che i puntatori di Inclinazione e Elevazione siano correttamente allineati alle scale. Non utilizzare rondelle o dadi come riferimento.
- Verificare che la regolazione di Inclinazione non sia cambiata rispetto all'impostazione raccomandata per la posizione dell'antenna.
- Rimuovere i componenti specifici preesistenti della TV, come splitter ecc. Lasciare solo i collegamenti base descritti in questa guida. Tali componenti possono non funzionare con il segnale satellitare e possono essere invisibili poiché a muro.
- In caso di dubbio, far passare il cavo RG 6 direttamente al STB.
- Verificare l'assenza di ostacoli (alberi, costruzioni, finestre, angoli o sporgenze del tetto, il proprio corpo o mani) - il segnale non oltrepassa foglie, rami, vetro ecc.
- Il cavo RG6 con conduttore centrale solido in rame è raccomandato perché ha una più bassa caduta di tensione DC rispetto ai cavi RG 6 con conduttore in acciaio rivestito in rame.
- Il cavo RG 59 standard causa eccessiva caduta di tensione DC e perdita di segnale; non può essere utilizzato per il segnale satellitare. Va utilizzato un cavo coassiale RG 6.
- Alcuni componenti di ricambio e accessori esistenti in commercio potrebbero avere caratteristiche diverse da quelle pubblicizzate. Potrebbero non funzionare o causare ulteriori cadute di tensione e attenuazioni dell'ampiezza del segnale.
- Eliminare tali componenti, limitarsi alle connessioni base specificate nel manuale e riverificare.
- Verificare che il cavo satellitare sia connesso alla presa "Sat-In" e non alla presa "Antenna-In". La presa "Antenna In" sul retro del STB è per l'ingresso antenna terrestre o TV via cavo.
- Se tutto è stato eseguito correttamente, ma il segnale è ancora assente, cambiare leggermente la regolazione di elevazione dell'antenna ( $\pm 2^\circ$ , poi  $\pm 4^\circ$  rispetto a quanto richiesto per l'impostazione) e ripetere la procedura.
- Verificare che la scheda di accesso del STB sia completamente inserita nell'apposito slot e correttamente orientata.

## Perdita di segnale / Attenuazione da pioggia

- Il segnale satellitare può essere temporaneamente assente a causa di pioggia particolarmente violenta. Un ottimale allineamento dell'antenna, associato a un cavo il più corto possibile, minimizza l'attenuazione da pioggia.
- Verificare che l'antenna sia montata stabilmente per evitare che possa perdere l'allineamento in caso di vento forte.
- Un'importante caduta di neve che si accumula sull'antenna può ridurre la potenza del segnale; va eliminata al più presto.
- La crescita di fogliame sulla linea di veduta dell'antenna può generare una graduale perdita dell'immagine.



### Installazione con cavo lungo

- Per installazioni in cui il cavo RG 6 va da STB a LNB supera di gran lunga 30m (45m o più), come riscontrato in un edificio commerciale o con più abitazioni, è necessaria un'alimentazione più favorevole per la stabilizzazione.
- Sarà inoltre necessario un amplificatore di segnale RF per compensare la perdita di ampiezza del segnale. In caso contrario l'antenna e il STB potrebbero non funzionare correttamente ed essere soggetti a frequenti interruzioni in caso di mal tempo. Per queste installazioni contattare un professionista.







# Flat Satellite Antenna

**Note**

As for an area not stated in the table, you can visit to [www.selfsat.com](http://www.selfsat.com) and find it from the column of Satellite finder under Customer service.

# Austria

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

	Turksat	ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 9	SES 5 / ASTRA 4	Thor Intelsat 10-02	Eutelsat 5W	Hispasat	
	42.0° East	31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	9.0° East	4.8° East	0.8° West	5.0° West	30.0° West	
Amstetten N 48.1, E 14.9	Az	145.5	158.2	162.4	168.5	174.2	178.5	182.6	186.6	193.5	200.9	205.9	233.2
	El	28.9	32.5	33.3	34.1	34.6	34.8	34.7	34.6	33.9	32.6	31.5	20.1
	Sk	-22.2	-7.4	-4.7	-0.6	3.2	-1.0	1.7	4.4	8.9	13.8	17.0	32.4
Bad Ischl N 47.7, E 13.6	Az	143.8	156.4	160.6	166.7	172.5	176.8	180.8	184.9	191.8	199.4	204.5	232.2
	El	28.7	32.5	33.4	34.4	34.9	35.2	35.2	35.1	34.5	33.4	32.3	21.1
	Sk	-23.4	-8.6	-5.9	-1.9	1.9	-2.2	0.6	3.3	7.9	12.9	16.2	32.1
Baden N 48.0, E 16.2	Az	147.0	159.8	164.0	170.2	176.0	180.3	184.3	188.3	195.2	202.6	207.6	234.5
	El	29.5	32.9	33.7	34.4	34.8	34.9	34.8	34.5	33.8	32.4	31.2	19.4
	Sk	-21.4	-6.4	-3.6	0.5	4.3	0.2	2.9	5.6	10.1	14.9	18.0	33.0
Bludenz N 47.2, E 9.8	Az	139.4	151.5	155.6	161.6	167.3	171.6	175.6	179.7	186.8	194.6	199.8	228.6
	El	27.4	31.8	32.8	34.1	35.0	35.4	35.7	35.8	35.5	34.7	33.9	23.5
	Sk	-26.3	-11.9	-9.3	-5.4	-1.6	-5.7	-3.0	-0.2	4.6	9.8	13.3	30.7
Bregenz N 47.5, E 9.7	Az	139.4	151.5	155.6	161.6	167.2	171.5	175.5	179.6	186.6	194.4	199.6	228.4
	El	27.1	31.4	32.5	33.8	34.6	35.1	35.3	35.4	35.2	34.4	33.6	23.3
	Sk	-26.1	-11.8	-9.2	-5.3	-1.6	-5.7	-3.0	-0.3	4.5	9.7	13.1	30.3
Dornbirn N 47.4, E 9.8	Az	139.5	151.6	155.7	161.7	167.3	171.6	175.7	179.7	186.8	194.5	199.7	228.5
	El	27.2	31.6	32.6	33.9	34.8	35.2	35.4	35.5	35.3	34.5	33.6	23.4
	Sk	-26.1	-11.8	-9.2	-5.3	-1.5	-5.7	-2.9	-0.2	4.6	9.8	13.2	30.5
Eisenstadt N 47.5, E 16.5	Az	147.1	160.0	164.3	170.5	176.3	180.7	184.7	188.8	195.7	203.2	208.1	235.0
	El	30.1	33.5	34.2	35.0	35.4	35.4	35.3	35.1	34.2	32.8	31.5	19.5
	Sk	-21.5	-6.3	-3.5	0.6	4.5	0.5	3.2	5.9	10.5	15.4	18.6	33.6
Graz N 47.1, E 15.4	Az	145.6	158.5	162.8	169.0	174.8	179.2	183.3	187.4	194.3	201.9	206.9	234.2
	El	30.0	33.6	34.4	35.3	35.7	35.9	35.8	35.6	34.9	33.5	32.3	20.4
	Sk	-22.6	-7.5	-4.6	-0.5	3.5	-0.6	2.2	5.0	9.7	14.7	18.0	33.5
Kapfenberg N 47.4, E 15.3	Az	145.7	158.5	162.7	168.9	174.7	179.1	183.1	187.2	194.1	201.7	206.7	233.9
	El	29.7	33.3	34.1	34.9	35.4	35.5	35.5	35.3	34.6	33.3	32.0	20.3
	Sk	-22.5	-7.4	-4.6	-0.5	3.4	-0.6	2.1	4.9	9.5	14.5	17.7	33.2
Klagenfurt N 46.4, E 14.2	Az	143.9	156.7	161.0	167.3	173.1	177.5	181.7	185.8	192.9	200.6	205.7	233.3
	El	30.1	34.0	34.9	35.8	36.4	36.6	36.6	36.5	35.8	34.6	33.4	21.5
	Sk	-24.0	-8.8	-6.0	-1.8	2.3	-1.7	1.1	4.0	8.8	14.0	17.4	33.6
Krems N 48.4, E 15.6	Az	146.4	159.2	163.4	169.5	175.2	179.5	183.5	187.5	194.3	201.7	206.7	233.8
	El	28.9	32.3	33.1	33.9	34.3	34.4	34.4	34.2	33.5	32.2	31.0	19.5
	Sk	-21.5	-6.7	-4.0	0.0	3.8	-0.4	2.3	5.0	9.5	14.2	17.4	32.4
Kufstein N 47.6, E 12.2	Az	142.2	154.6	158.8	164.9	170.6	174.9	178.9	183.0	190.0	197.6	202.7	230.8
	El	28.2	32.2	33.1	34.2	34.9	35.2	35.3	35.3	34.8	33.8	32.8	21.9
	Sk	-24.4	-9.8	-7.1	-3.1	0.7	-3.5	-0.7	2.0	6.7	11.8	15.1	31.5
Linz N 48.3, E 14.3	Az	144.9	157.5	161.7	167.8	173.5	177.7	181.7	185.8	192.6	200.1	205.1	232.6
	El	28.4	32.1	32.9	33.8	34.3	34.5	34.5	34.4	33.8	32.6	31.5	20.3
	Sk	-22.5	-7.8	-5.1	-1.1	2.7	-1.5	1.2	3.8	8.4	13.2	16.4	31.9
Loeben N 47.4, E 15.1	Az	145.4	158.2	162.5	168.7	174.4	178.8	182.9	186.9	193.9	201.4	206.4	233.7
	El	29.6	33.2	34.0	34.9	35.4	35.5	35.5	35.3	34.6	33.3	32.1	20.4
	Sk	-22.6	-7.6	-4.8	-0.7	3.2	-0.8	1.9	4.7	9.3	14.3	17.5	33.1
Saalfelden N 47.4, E 12.9	Az	142.9	155.4	159.6	165.7	171.5	175.8	179.9	183.9	190.9	198.6	203.7	231.6
	El	28.6	32.6	33.5	34.6	35.2	35.4	35.5	35.5	35.0	33.9	32.8	21.6
	Sk	-24.1	-9.4	-6.6	-2.6	1.2	-2.9	-0.1	2.7	7.4	12.5	15.8	32.0
Salzburg N 47.8, E 13.1	Az	143.3	155.8	160.0	166.1	171.8	176.1	180.1	184.2	191.1	198.7	203.8	231.6
	El	28.4	32.3	33.2	34.2	34.8	35.0	35.1	35.0	34.5	33.4	32.3	21.3
	Sk	-23.7	-9.0	-6.3	-2.3	1.5	-2.6	0.1	2.8	7.5	12.5	15.7	31.8
Sankt Pölten N 48.2, E 15.6	Az	146.3	159.1	163.3	169.5	175.2	179.5	183.5	187.5	194.4	201.8	206.8	233.9
	El	29.1	32.5	33.3	34.1	34.5	34.7	34.6	34.4	33.7	32.4	31.2	19.6
	Sk	-21.7	-6.8	-4.0	0.0	3.8	-0.4	2.3	5.0	9.5	14.3	17.5	32.6
Steyr N 48.1, E 14.4	Az	144.9	157.5	161.7	167.9	173.6	177.9	181.9	185.9	192.8	200.3	205.3	232.8
	El	28.7	32.3	33.2	34.1	34.6	34.7	34.7	34.6	34.0	32.8	31.6	20.4
	Sk	-22.6	-7.8	-5.1	-1.1	2.7	-1.4	1.3	3.9	8.5	13.4	16.6	32.1
Stockerau N 48.3, E 16.3	Az	147.2	160.0	164.2	170.4	176.1	180.4	184.4	188.4	195.2	202.6	207.6	234.5
	El	29.2	32.6	33.4	34.1	34.5	34.5	34.5	34.2	33.4	32.1	30.8	19.2
	Sk	-21.1	-6.2	-3.4	0.6	4.4	0.3	2.9	5.6	10.1	14.8	17.9	32.8
Tauern N 47.3, E 12.7	Az	142.6	155.2	159.3	165.5	171.2	175.5	179.6	183.7	190.7	198.4	203.5	231.5
	El	28.6	32.6	33.6	34.6	35.3	35.5	35.6	35.6	35.1	34.0	33.0	21.8
	Sk	-24.3	-9.6	-6.9	-2.8	1.0	-3.0	-0.3	2.5	7.2	12.3	15.7	32.0
Villach N 46.6, E 13.9	Az	143.7	156.4	160.7	166.9	172.7	177.1	181.2	185.4	192.4	200.1	205.2	233.0
	El	29.8	33.7	34.6	35.6	36.2	36.4	36.4	36.3	35.7	34.4	33.3	21.6
	Sk	-24.0	-9.0	-6.2	-2.0	2.0	-2.0	0.9	3.7	8.5	13.7	17.0	33.3
Wels N 48.2, E 14.0	Az	144.5	157.1	161.3	167.4	173.0	177.3	181.3	185.4	192.3	199.8	204.8	232.3
	El	28.4	32.1	33.0	33.9	34.4	34.6	34.6	34.5	33.9	32.8	31.7	20.5
	Sk	-22.8	-8.1	-5.4	-1.4	2.4	-1.8	0.9	3.6	8.1	13.0	16.2	31.8
Wien N 48.2, E 16.4	Az	147.3	160.1	164.4	170.5	176.3	180.5	184.6	188.6	195.4	202.8	207.7	234.6
	El	29.4	32.8	33.5	34.2	34.6	34.7	34.6	34.3	33.5	32.1	30.9	19.2
	Sk	-21.1	-6.1	-3.4	0.7	4.5	0.4	3.0	5.7	10.2	15.0	18.1	32.9
Wolfsberg N 46.8, E 14.9	Az	144.9	157.8	162.0	168.3	174.1	178.5	182.6	186.7	193.7	201.3	206.4	233.8
	El	30.0	33.8	34.6	35.5	36.0	36.2	36.2	36.0	35.3	34.0	32.8	20.9
	Sk	-23.2	-8.0	-5.2	-1.0	3.0	-1.0	1.8	4.6	9.4	14.4	17.7	33.5

## Belgium

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		Türksat	ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Holbird 13	Eutelsat 9	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W	Hispasat
		42.0° East	31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	9.0° East	4.8° East	0.8° West	5.0° West	30.0° West
Antwerpen N 51.2, E 4.4	Az	135.3	146.7	150.5	156.0	161.3	165.2	169.0	174.1	179.5	186.9	192.0	221.3
	El	21.7	26.1	27.3	28.7	29.7	30.4	30.8	31.2	31.4	31.2	30.7	23.1
	Sk	-26.1	-13.1	-11.0	-7.7	-4.6	-9.2	-6.9	-3.7	-0.3	4.3	7.5	24.4
Arlon N 49.7, E 5.8	Az	136.2	147.8	151.6	157.3	162.7	166.7	170.6	175.8	181.3	188.9	194.0	223.4
	El	23.5	28.0	29.1	30.6	31.6	32.2	32.6	32.9	33.0	32.6	32.1	23.7
	Sk	-26.6	-13.2	-10.9	-7.5	-4.1	-8.5	-6.1	-2.7	0.9	5.7	9.0	26.4
Bastogne N 50.0, E 5.7	Az	136.2	147.8	151.6	157.3	162.6	166.7	170.5	175.7	181.2	188.7	193.9	223.2
	El	23.2	27.7	28.8	30.2	31.3	31.9	32.3	32.6	32.7	32.3	31.8	23.5
	Sk	-26.4	-13.1	-10.8	-7.4	-4.1	-8.5	-6.1	-2.8	0.8	5.6	8.9	26.1
Bergen N 50.5, E 4.0	Az	134.6	146.0	149.8	155.4	160.6	164.6	168.4	173.5	179.0	186.5	191.6	221.2
	El	22.0	26.6	27.8	29.3	30.4	31.0	31.5	32.0	32.1	32.0	31.5	23.9
	Sk	-26.9	-13.8	-11.7	-8.4	-5.2	-9.7	-7.4	-4.1	-0.7	4.1	7.4	24.8
Brügge N 51.2, E 3.2	Az	134.1	145.4	149.1	154.6	159.8	163.8	167.5	172.6	178.0	185.4	190.5	220.0
	El	21.1	25.7	26.9	28.3	29.5	30.2	30.7	31.1	31.4	31.3	30.9	23.7
	Sk	-26.7	-13.9	-11.8	-8.6	-5.5	-10.1	-7.8	-4.7	-1.3	3.4	6.5	23.8
Brüssel N 50.8, E 4.4	Az	135.2	146.6	150.4	155.9	161.2	165.2	169.0	174.1	179.5	187.0	192.1	221.5
	El	22.0	26.5	27.6	29.1	30.2	30.8	31.3	31.7	31.8	31.6	31.1	23.5
	Sk	-26.5	-13.4	-11.2	-7.9	-4.8	-9.3	-7.0	-3.7	-0.3	4.4	7.6	24.7
Charleroi N 50.4, E 4.5	Az	135.1	146.5	150.3	155.9	161.2	165.2	169.0	174.2	179.6	187.1	192.3	221.7
	El	22.3	26.9	28.0	29.5	30.6	31.2	31.7	32.1	32.3	32.0	31.6	23.7
	Sk	-26.7	-13.6	-11.4	-8.1	-4.9	-9.4	-7.0	-3.7	-0.3	4.5	7.8	25.1
Eupen N 50.6, E 6.0	Az	136.8	148.3	152.2	157.8	163.1	167.2	171.0	176.1	181.6	189.0	194.1	223.2
	El	22.9	27.2	28.3	29.7	30.7	31.3	31.7	32.0	32.0	31.7	31.1	22.9
	Sk	-25.8	-12.5	-10.2	-6.9	-3.6	-8.1	-5.7	-2.5	1.0	5.7	8.9	25.8
Gent N 51.0, E 3.7	Az	134.5	145.9	149.6	155.1	160.4	164.3	168.1	173.2	178.6	186.0	191.1	220.6
	El	21.5	26.0	27.2	28.7	29.8	30.5	30.9	31.4	31.6	31.4	31.0	23.6
	Sk	-26.7	-13.7	-11.6	-8.3	-5.2	-9.8	-7.5	-4.3	-0.9	3.8	7.0	24.2
Hasselt N 50.9, E 5.3	Az	136.2	147.6	151.4	157.0	162.3	166.3	170.1	175.2	180.6	188.1	193.2	222.4
	El	22.3	26.7	27.8	29.2	30.2	30.8	31.3	31.6	31.7	31.4	30.9	23.0
	Sk	-25.9	-12.7	-10.6	-7.2	-4.1	-8.6	-6.2	-3.0	0.4	5.1	8.3	25.2
Kortrijk N 50.8, E 3.3	Az	134.1	145.3	149.1	154.6	159.8	163.8	167.6	172.7	178.1	185.5	190.7	220.3
	El	21.5	26.0	27.3	28.8	29.9	30.6	31.1	31.6	31.8	31.7	31.1	23.9
	Sk	-27.0	-14.1	-12.0	-8.7	-5.6	-10.2	-7.8	-4.6	-1.2	3.5	6.7	24.1
Leuven N 50.9, E 4.7	Az	135.5	146.9	150.7	156.3	161.6	165.6	169.4	174.5	179.9	187.3	192.4	221.7
	El	22.1	26.5	27.6	29.1	30.1	30.7	31.2	31.6	31.7	31.5	31.0	23.2
	Sk	-26.2	-13.1	-11.0	-7.7	-4.5	-9.1	-6.7	-3.5	-0.1	4.6	7.8	24.8
Lüttich N 50.6, E 5.6	Az	136.4	147.9	151.7	157.3	162.6	166.6	170.5	175.6	181.0	188.5	193.6	222.8
	El	22.7	27.1	28.2	29.6	30.6	31.2	31.6	31.9	32.0	31.7	31.2	23.1
	Sk	-26.0	-12.7	-10.5	-7.2	-3.9	-8.4	-6.0	-2.8	0.7	5.4	8.6	25.6
Malmedy N 50.4, E 6.0	Az	136.7	148.2	152.1	157.8	163.1	167.1	171.0	176.1	181.6	189.1	194.2	223.3
	El	23.0	27.4	28.5	29.9	30.9	31.5	31.9	32.2	32.2	31.9	31.3	23.0
	Sk	-25.9	-12.6	-10.4	-7.0	-3.7	-8.2	-5.8	-2.5	1.0	5.8	9.0	25.9
Mecheln N 51.0, E 4.5	Az	135.4	146.8	150.5	156.1	161.4	165.3	169.1	174.2	179.6	187.1	192.2	221.5
	El	21.9	26.3	27.5	28.9	30.0	30.6	31.1	31.4	31.6	31.4	30.9	23.3
	Sk	-26.2	-13.2	-11.0	-7.8	-4.6	-9.2	-6.8	-3.6	-0.2	4.4	7.6	24.6
Namur N 50.5, E 4.9	Az	135.6	147.0	150.8	156.4	161.7	165.7	169.6	174.7	180.1	187.6	192.7	222.1
	El	22.5	26.9	28.1	29.5	30.6	31.2	31.6	32.0	32.1	31.9	31.4	23.5
	Sk	-26.4	-13.3	-11.1	-7.7	-4.5	-9.0	-6.6	-3.4	0.1	4.8	8.1	25.3
Eende N 51.2, E 2.9	Az	133.8	145.0	148.8	154.3	159.4	163.4	167.1	172.2	177.6	185.0	190.1	219.7
	El	21.0	25.5	26.7	28.3	29.4	30.1	30.6	31.1	31.4	31.3	30.9	23.8
	Sk	-26.9	-14.1	-12.0	-8.8	-5.7	-10.3	-8.0	-4.9	-1.5	3.1	6.3	23.6

# Denmark

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth EI=Elevation Sk=Skew

		ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 10	Eutelsat 9	Eutelsat 7	SES 5/ ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W
		31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	10.0° East	9.0° East	7.0° East	4.8° East	0.8° West	5.0° West
Alborg N 57.1, E 9.9	Az	154.8	158.5	163.9	169.0	172.8	176.3	179.9	181.1	183.5	186.1	192.9	197.6
	EI	22.3	23.0	23.9	24.5	24.8	25.0	25.0	25.0	25.0	24.9	24.3	23.7
	Sk	-6.4	-4.5	-1.7	1.0	-3.9	-2.0	-0.1	0.6	1.9	3.3	7.0	9.4
Arhus N 56.2, E 10.2	Az	154.9	158.6	164.1	169.2	173.0	176.6	180.2	181.4	183.9	186.5	193.4	198.1
	EI	23.2	24.0	24.9	25.5	25.8	25.9	26.0	26.0	25.9	25.8	25.2	24.6
	Sk	-6.7	-4.7	-1.8	1.0	-3.9	-1.9	0.1	0.8	2.1	3.6	7.4	10.0
Esbjerg N 55.5, E 8.5	Az	152.8	156.5	162.0	167.1	170.9	174.5	178.2	179.4	181.8	184.5	191.5	196.2
	EI	23.5	24.3	25.3	26.0	26.4	26.6	26.7	26.7	26.7	26.7	26.2	25.6
	Sk	-8.0	-6.0	-3.1	-0.3	-5.1	-3.1	-1.0	-0.3	1.0	2.5	6.5	9.1
Helsingor N 56.1, E 12.6	Az	157.6	161.4	166.9	172.1	175.9	179.5	183.1	184.3	186.7	189.4	196.3	200.9
	EI	23.9	24.6	25.4	25.8	26.0	26.1	26.1	26.0	25.9	25.7	24.9	24.2
	Sk	-5.3	-3.2	-0.2	2.6	-2.3	-0.3	1.8	2.4	3.8	5.2	9.0	11.5
Horsens N 57.1, E 10.1	Az	155.0	158.7	164.2	169.2	173.0	176.6	180.1	181.3	183.7	186.3	193.2	197.8
	EI	22.3	23.1	24.0	24.5	24.8	25.0	25.0	25.0	25.0	24.9	24.3	23.7
	Sk	-6.3	-4.4	-1.5	1.2	-3.8	-1.9	0.1	0.7	2.0	3.4	7.1	9.6
Kobenhavn (Kopenhagen) N 55.7, E 12.6	Az	157.5	161.3	166.9	172.0	175.9	179.5	183.2	184.4	186.8	189.4	196.3	201.0
	EI	24.3	25.0	25.8	26.2	26.5	26.5	26.5	26.4	26.3	26.1	25.4	24.6
	Sk	-5.5	-3.4	-0.4	2.5	-2.3	-0.3	1.8	2.5	3.8	5.3	9.1	11.7
Kolding N 55.5, E 9.5	Az	153.9	157.7	163.2	168.3	172.1	175.8	179.4	180.6	183.0	185.7	192.7	197.4
	EI	23.7	24.5	25.5	26.1	26.5	26.7	26.7	26.7	26.7	26.6	26.0	25.4
	Sk	-7.4	-5.4	-2.4	0.4	-4.5	-2.4	-0.3	0.3	1.7	3.2	7.1	9.8
Odense N 55.4, E 10.4	Az	154.9	158.7	164.2	169.4	173.2	176.8	180.5	181.7	184.1	186.8	193.8	198.5
	EI	24.1	24.8	25.8	26.4	26.6	26.8	26.8	26.8	26.8	26.6	26.0	25.3
	Sk	-7.0	-4.9	-1.9	1.0	-3.9	-1.8	0.3	1.0	2.3	3.9	7.8	10.4
Randers N 56.5, E 10.1	Az	154.8	158.6	164.1	169.1	172.9	176.5	180.1	181.3	183.7	186.4	193.2	197.9
	EI	22.9	23.7	24.6	25.2	25.5	25.6	25.7	25.7	25.6	25.5	24.9	24.3
	Sk	-6.6	-4.6	-1.7	1.0	-3.9	-1.9	0.1	0.7	2.1	3.5	7.3	9.8
Roskilde N 55.7, E 12.1	Az	156.9	160.7	166.3	171.4	175.3	178.9	182.5	183.8	186.2	188.8	195.7	200.4
	EI	24.2	24.9	25.7	26.2	26.4	26.5	26.5	26.5	26.4	26.2	25.4	24.7
	Sk	-5.8	-3.7	-0.7	2.2	-2.7	-0.6	1.4	2.1	3.5	5.0	8.8	11.3
Vejle N 55.7, E 9.6	Az	154.1	157.8	163.3	168.4	172.3	175.9	179.5	180.7	183.2	185.8	192.8	197.5
	EI	23.6	24.4	25.3	25.9	26.3	26.5	26.5	26.5	26.5	26.4	25.8	25.2
	Sk	-7.3	-5.3	-2.3	0.5	-4.4	-2.3	-0.3	0.4	1.8	3.3	7.2	9.8

## Finland

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 10	Eutelsat 9	Eutelsat 7	SES 5/ ASTRA 4	Thor / Intelsat 1002	Eutelsat 5W
		31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	10.0° East	9.0° East	7.0° East	4.8° East	0.8° West	5.0° West
Espoo N 60.2, E 24.7	Az	172.2	176.0	181.4	186.3	190.0	193.4	196.8	198.0	200.2	202.6	209.0	213.3
	El	21.5	21.7	21.7	21.6	21.3	21.0	20.6	20.4	20.1	19.7	18.4	17.3
	Sk	3.1	5.0	7.7	10.1	5.0	6.6	8.3	8.8	9.9	11.0	14.0	15.8
Helsinki N 60.1, E 25.0	Az	172.5	176.3	181.7	186.7	190.4	193.8	197.2	198.3	200.6	203.0	209.4	213.7
	El	21.6	21.8	21.8	21.7	21.4	21.1	20.7	20.5	20.1	19.7	18.4	17.3
	Sk	3.3	5.2	7.9	10.3	5.1	6.8	8.5	9.0	10.1	11.2	14.2	16.0
Jyväskylä N 62.3, E 25.8	Az	173.6	177.3	182.6	187.5	191.0	194.4	197.7	198.8	201.0	203.4	209.7	214.0
	El	19.4	19.5	19.5	19.3	19.0	18.7	18.3	18.2	17.8	17.4	16.2	15.1
	Sk	4.0	5.7	8.2	10.5	5.1	6.6	8.1	8.6	9.6	10.7	13.3	15.1
Kotka N 60.4, E 26.9	Az	174.7	178.5	183.9	188.8	192.5	195.9	199.3	200.4	202.6	205.0	211.3	215.6
	El	21.4	21.5	21.5	21.2	20.9	20.5	20.0	19.9	19.5	19.0	17.6	16.5
	Sk	4.4	6.3	8.9	11.4	6.1	7.8	9.4	9.9	10.9	12.1	14.9	16.7
Kuopio N 62.9, E 27.7	Az	175.7	179.4	184.7	189.5	193.1	196.4	199.7	200.8	203.0	205.4	211.6	215.8
	El	18.8	18.9	18.8	18.5	18.2	17.9	17.4	17.3	16.9	16.5	15.2	14.1
	Sk	5.1	6.7	9.2	11.3	5.9	7.4	8.8	9.3	10.3	11.3	13.8	15.5
Lahti N 61.0, E 25.7	Az	173.4	177.1	182.5	187.4	191.1	194.5	197.8	198.9	201.2	203.6	209.9	214.2
	El	20.7	20.8	20.9	20.7	20.4	20.1	19.6	19.5	19.1	18.7	17.4	16.3
	Sk	3.8	5.6	8.2	10.6	5.3	7.0	8.5	9.1	10.1	11.2	14.0	15.8
Oulu N 65.0, E 25.4	Az	173.3	176.9	182.1	186.8	190.4	193.6	196.9	198.0	200.2	202.5	208.7	212.9
	El	16.5	16.6	16.7	16.5	16.3	16.0	15.7	15.5	15.3	14.9	13.8	12.9
	Sk	4.2	5.7	7.9	9.9	4.4	5.7	7.1	7.5	8.4	9.3	11.7	13.3
Pori N 61.5, E 21.8	Az	169.0	172.7	178.1	183.0	186.6	190.0	193.4	194.5	196.7	199.2	205.6	209.9
	El	19.9	20.1	20.3	20.3	20.2	20.0	19.7	19.5	19.3	18.9	17.8	16.9
	Sk	1.8	3.5	6.1	8.4	3.1	4.8	6.3	6.9	7.9	9.0	11.9	13.8
Tampere N 61.5, E 23.8	Az	171.3	175.0	180.3	185.2	188.9	192.3	195.6	196.7	199.0	201.4	207.7	212.0
	El	20.1	20.3	20.4	20.2	20.0	19.8	19.4	19.3	19.0	18.6	17.4	16.4
	Sk	2.8	4.6	7.2	9.5	4.2	5.8	7.4	7.9	8.9	10.0	12.8	14.7
Turku N 60.5, E 22.3	Az	169.5	173.2	178.6	183.6	187.2	190.7	194.1	195.2	197.5	199.9	206.3	210.7
	El	21.0	21.2	21.4	21.4	21.2	21.0	20.6	20.5	20.2	19.8	18.7	17.7
	Sk	1.8	3.7	6.3	8.8	3.6	5.2	6.9	7.4	8.5	9.7	12.6	14.6
Vantaa N 60.3, E 25.0	Az	172.5	176.3	181.7	186.7	190.3	193.8	197.1	198.3	200.5	203.0	209.3	213.6
	El	21.4	21.6	21.6	21.4	21.2	20.9	20.4	20.3	19.9	19.5	18.2	17.1
	Sk	3.3	5.2	7.9	10.3	5.1	6.8	8.4	8.9	10.0	11.1	14.0	15.9

# France

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		Turksat	ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Holbird 13	Eutelsat 9	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W	Hispasat
		42.0° East	31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	9.0° East	4.8° East	0.8° West	5.0° West	30.0° West
Amiens N 49.9, E 2.3	Az	132.7	143.9	147.6	153.1	158.3	162.3	166.1	171.3	176.7	184.3	189.5	219.6
	El	21.6	26.4	27.7	29.3	30.6	31.3	31.9	32.4	32.7	32.7	32.4	25.1
	Sk	-28.3	-15.3	-13.2	-9.9	-6.8	-11.3	-8.9	-5.6	-2.1	2.8	6.1	24.2
Angers N 47.5, W 0.6	Az	128.7	139.6	143.3	148.8	154.0	158.0	161.8	167.1	172.7	180.5	186.0	217.4
	El	21.7	27.2	28.7	30.6	32.1	33.1	33.8	34.6	35.2	35.4	35.3	28.4
	Sk	-31.8	-19.0	-16.8	-13.5	-10.2	-14.7	-12.2	-8.7	-4.9	0.4	4.0	24.2
Belfort N 47.6, E 6.8	Az	136.3	148.1	152.1	157.9	163.4	167.6	171.6	177.0	182.7	190.5	195.8	225.4
	El	25.6	30.3	31.5	32.9	34.0	34.6	35.0	35.3	35.3	34.8	34.1	24.8
	Sk	-27.8	-13.9	-11.4	-7.7	-4.1	-8.3	-5.6	-2.0	1.8	7.1	10.6	28.7
Bordeaux N 44.8, W 0.6	Az	127.5	138.3	142.0	147.6	152.9	157.1	161.1	166.5	172.4	180.6	186.2	218.7
	El	23.5	29.4	31.0	33.1	34.7	35.8	36.6	37.5	38.1	38.4	38.2	30.7
	Sk	-34.3	-21.2	-18.9	-15.4	-11.8	-16.1	-13.3	-9.5	-5.4	0.4	4.4	26.3
Boulogne N 47.2, W 1.8	Az	127.4	138.2	141.8	147.2	152.4	156.4	160.2	165.4	171.0	178.9	184.4	216.2
	El	21.3	26.9	28.4	30.4	32.0	33.0	33.9	34.7	35.4	35.7	35.7	29.2
	Sk	-32.7	-20.0	-17.8	-14.6	-11.4	-15.8	-13.3	-9.8	-6.1	-0.7	3.0	23.6
Brest N 48.4, W 4.5	Az	125.4	135.8	139.4	144.6	149.6	153.4	157.1	162.2	167.7	175.3	180.7	212.5
	El	19.0	24.6	26.2	28.2	29.9	31.0	31.9	32.9	33.7	34.3	34.4	29.2
	Sk	-32.8	-20.6	-18.6	-15.6	-12.6	-17.3	-15.0	-11.7	-8.2	-3.1	0.4	20.9
Charleville- Mezieres N 49.7, E 4.7	Az	135.0	146.5	150.3	156.0	161.3	165.3	169.2	174.4	179.9	187.5	192.6	222.2
	El	23.0	27.6	28.8	30.3	31.4	32.0	32.5	32.9	33.0	32.8	32.3	24.2
	Sk	-27.2	-13.9	-11.7	-8.3	-5.0	-9.4	-7.0	-3.6	-0.1	4.8	8.1	25.8
Colmar N 48.1, E 7.3	Az	137.1	148.9	152.8	158.7	164.2	168.4	172.4	177.7	183.4	191.1	196.3	225.7
	El	25.5	30.0	31.2	32.6	33.6	34.1	34.5	34.7	34.7	34.2	33.5	24.2
	Sk	-27.1	-13.2	-10.8	-7.1	-3.5	-7.7	-5.1	-1.5	2.2	7.4	10.8	28.5
Le Havre N 49.5, E 0.1	Az	130.3	141.2	144.9	150.4	155.5	159.5	163.2	168.4	173.8	181.5	186.7	217.3
	El	20.8	25.8	27.2	29.0	30.4	31.2	31.9	32.6	33.1	33.2	33.0	26.4
	Sk	-29.7	-17.0	-14.9	-11.7	-8.6	-13.2	-10.8	-7.5	-4.0	0.9	4.3	23.2
Lyon N 45.8, E 4.8	Az	133.4	145.0	148.9	154.7	160.3	164.6	168.6	174.2	180.0	188.1	193.6	224.1
	El	25.9	31.1	32.4	34.1	35.3	36.1	36.7	37.1	37.3	37.0	36.4	27.2
	Sk	-30.5	-16.6	-14.1	-10.3	-6.6	-10.7	-7.9	-4.1	0.0	5.6	9.4	29.0
Marseille N 43.3, E 5.4	Az	132.7	144.5	148.5	154.5	160.3	164.7	169.0	174.8	180.9	189.3	195.0	226.0
	El	28.1	33.6	35.0	36.8	38.1	38.9	39.5	39.9	40.1	39.6	39.0	28.8
	Sk	-32.3	-18.0	-15.4	-11.3	-7.2	-11.1	-8.0	-3.8	0.6	6.8	10.8	31.6
Metz N 49.1, E 6.2	Az	136.3	148.0	151.9	157.6	163.0	167.1	171.0	176.3	181.9	189.5	194.7	224.1
	El	24.1	28.7	29.8	31.3	32.3	32.9	33.3	33.6	33.7	33.2	32.6	24.0
	Sk	-26.9	-13.3	-11.0	-7.5	-4.0	-8.4	-5.9	-2.4	1.2	6.2	9.6	27.1
Montpellier N 43.6, E 3.9	Az	131.3	142.8	146.8	152.7	158.4	162.7	166.9	172.6	178.7	187.1	192.8	224.3
	El	27.0	32.6	34.1	36.0	37.4	38.3	38.9	39.5	39.7	39.5	38.9	29.4
	Sk	-32.9	-18.9	-16.4	-12.4	-8.5	-12.4	-9.4	-5.3	-0.9	5.1	9.2	30.4
Mulhouse N 47.7, E 7.3	Az	136.9	148.7	152.7	158.6	164.1	168.3	172.3	177.7	183.4	191.2	196.4	225.9
	El	25.8	30.4	31.6	33.0	34.0	34.6	34.9	35.2	35.2	34.6	33.9	24.5
	Sk	-27.4	-13.5	-11.0	-7.2	-3.6	-7.8	-5.2	-1.6	2.3	7.5	11.0	28.9
Nantes N 47.2, W 1.6	Az	127.6	138.4	142.0	147.4	152.6	156.6	160.5	165.7	171.3	179.2	184.6	216.4
	El	21.4	26.9	28.5	30.5	32.1	33.1	33.9	34.8	35.4	35.7	35.7	29.1
	Sk	-32.6	-19.8	-17.7	-14.5	-11.2	-15.6	-13.1	-9.7	-5.9	-0.6	3.1	23.8
Orleans N 47.9, E 1.9	Az	131.4	142.6	146.3	151.9	157.2	161.3	165.2	170.5	176.1	183.9	189.3	220.0
	El	22.8	28.0	29.4	31.1	32.5	33.3	33.9	34.6	34.9	34.9	34.6	26.9
	Sk	-30.2	-17.1	-14.8	-11.4	-8.0	-12.4	-9.9	-6.4	-2.6	2.6	6.2	25.5
Paris N 48.9, E 2.3	Az	132.2	143.4	147.2	152.8	158.0	162.1	165.9	171.1	176.7	184.4	189.7	220.0
	El	22.3	27.3	28.6	30.3	31.6	32.4	32.9	33.5	33.8	33.8	33.4	25.9
	Sk	-29.1	-16.1	-13.9	-10.5	-7.2	-11.7	-9.2	-5.8	-2.2	2.9	6.3	25.0
Reims N 49.3, E 4.0	Az	134.1	145.5	149.3	155.0	160.3	164.3	168.2	173.4	178.9	186.6	191.8	221.7
	El	22.9	27.6	28.9	30.4	31.6	32.3	32.8	33.2	33.4	33.2	32.8	24.8
	Sk	-27.9	-14.7	-12.4	-9.0	-5.7	-10.1	-7.7	-4.3	-0.7	4.3	7.7	25.7
Rennes N 48.1, W 1.7	Az	127.9	138.7	142.3	147.7	152.8	156.8	160.6	165.8	171.3	179.1	184.4	215.9
	El	20.7	26.2	27.7	29.6	31.2	32.2	33.0	33.8	34.4	34.8	34.7	28.4
	Sk	-31.8	-19.2	-17.1	-13.9	-10.8	-15.3	-12.8	-9.5	-5.8	-0.6	3.0	23.0
Rouen N 49.5, E 1.1	Az	131.3	142.4	146.1	151.5	156.7	160.7	164.5	169.7	175.1	182.8	188.0	218.4
	El	21.3	26.3	27.6	29.3	30.6	31.5	32.1	32.7	33.1	33.2	32.9	26.0
	Sk	-29.2	-16.4	-14.3	-11.0	-7.9	-12.4	-10.0	-6.7	-3.2	1.8	5.2	23.8
St-Étienne N 45.4, E 4.4	Az	132.8	144.3	148.2	154.1	159.6	163.9	168.0	173.6	179.4	187.6	193.1	223.9
	El	26.0	31.3	32.7	34.4	35.7	36.5	37.0	37.5	37.7	37.5	36.9	27.7
	Sk	-31.0	-17.2	-14.7	-10.9	-7.1	-11.2	-8.4	-4.5	-0.4	5.3	9.2	29.1
Straßburg N 48.6, E 7.8	Az	137.8	149.7	153.6	159.5	165.0	169.1	173.1	178.4	184.0	191.7	196.9	226.0
	El	25.3	29.7	30.8	32.2	33.1	33.7	34.0	34.2	34.1	33.6	32.9	23.5
	Sk	-26.4	-12.5	-10.1	-6.4	-2.9	-7.2	-4.6	-1.1	2.6	7.7	11.1	28.4
Toulouse N 43.6, E 1.5	Az	128.9	140.1	143.9	149.6	155.2	159.4	163.6	169.2	175.2	183.6	189.4	221.6
	El	25.6	31.4	33.0	35.1	36.7	37.6	38.4	39.2	39.6	39.7	39.3	30.7
	Sk	-34.3	-20.7	-18.3	-14.5	-10.7	-14.7	-11.8	-7.8	-3.5	2.6	6.8	28.8
Tours N 47.4, E 0.7	Az	130.0	141.0	144.7	150.3	155.6	159.6	163.5	168.8	174.4	182.3	187.7	218.9
	El	22.5	27.9	29.3	31.2	32.6	33.5	34.2	34.9	35.4	35.5	35.2	27.9
	Sk	-31.3	-18.2	-16.0	-12.6	-9.3	-13.6	-11.1	-7.6	-3.8	1.6	5.2	25.2

## Germany

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		Türksat	ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 9	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W	Hispasat
		42.0° East	31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	9.0° East	4.8° East	0.8° West	5.0° West	30.0° West
Bamberg N 49.9, E 10.9	Az	141.7	153.8	157.8	163.7	169.2	173.4	177.3	182.5	188.0	195.4	200.4	228.6
	El	25.6	29.5	30.5	31.5	32.3	32.6	32.8	32.8	32.5	31.7	30.8	21.0
	Sk	-23.5	-9.5	-7.1	-3.4	0.1	-4.3	-1.8	1.6	5.1	9.9	13.0	28.9
Berlin N 52.5, E 13.4	Az	145.5	157.6	161.6	167.4	172.7	176.7	180.5	185.5	190.8	197.9	202.8	230.0
	El	24.4	27.7	28.4	29.2	29.7	29.9	30.0	29.8	29.4	28.5	27.6	18.0
	Sk	-20.2	-6.4	-4.1	-0.7	2.6	-2.0	0.3	3.4	6.6	10.8	13.6	27.8
Bonn N 50.7, E 7.1	Az	138.0	149.6	153.5	159.2	164.5	168.6	172.4	177.6	183.0	190.4	195.5	224.3
	El	23.3	27.5	28.6	29.9	30.8	31.3	31.7	31.9	31.9	31.4	30.8	22.3
	Sk	-25.1	-11.7	-9.4	-6.0	-2.7	-7.2	-4.8	-1.6	1.9	6.6	9.7	26.3
Bremen N 53.1, E 8.8	Az	140.7	152.4	156.2	161.8	167.1	171.0	174.8	179.8	185.0	192.2	197.1	225.2
	El	22.1	25.8	26.7	27.8	28.6	29.0	29.2	29.3	29.2	28.7	28.0	19.7
	Sk	-22.4	-9.2	-7.0	-3.8	-0.7	-5.4	-3.2	-0.2	3.0	7.3	10.2	25.2
Dortmund N 51.5, E 7.5	Az	138.7	150.4	154.2	159.9	165.2	169.2	173.0	178.1	183.5	190.8	195.8	224.4
	El	22.9	26.9	27.9	29.2	30.0	30.5	30.8	31.0	31.0	30.5	29.9	21.5
	Sk	-24.3	-10.9	-8.7	-5.4	-2.2	-6.7	-4.4	-1.2	2.2	6.7	9.8	25.8
Dresden N 51.1, E 13.7	Az	145.3	157.6	161.6	167.5	173.0	177.1	180.9	186.0	191.4	198.6	203.5	230.8
	El	25.7	29.1	29.9	30.8	31.3	31.5	31.5	31.3	30.9	29.9	28.9	18.8
	Sk	-20.9	-6.9	-4.4	-0.8	2.6	-1.9	0.6	3.8	7.1	11.6	14.5	29.1
Duisburg N 51.4, E 6.8	Az	137.9	149.5	153.4	159.0	164.3	168.3	172.1	177.2	182.6	189.9	195.0	223.8
	El	22.6	26.8	27.8	29.1	30.0	30.5	30.9	31.1	31.1	30.7	30.1	21.9
	Sk	-24.7	-11.5	-9.2	-5.9	-2.7	-7.3	-4.9	-1.8	1.6	6.2	9.3	25.6
Düsseldorf N 51.2, E 6.8	Az	137.9	149.5	153.3	159.0	164.3	168.3	172.1	177.2	182.6	190.0	195.0	223.8
	El	22.8	27.0	28.0	29.3	30.2	30.7	31.1	31.3	31.4	30.9	30.3	22.1
	Sk	-24.9	-11.6	-9.4	-6.0	-2.8	-7.3	-5.0	-1.8	1.6	6.2	9.3	25.7
Erfurt N 51.0, E 11.0	Az	142.3	154.3	158.3	164.1	169.5	173.6	177.4	182.6	188.0	195.3	200.3	228.2
	El	24.8	28.5	29.4	30.4	31.1	31.4	31.6	31.6	31.3	30.5	29.7	20.2
	Sk	-22.6	-8.8	-6.5	-2.9	0.4	-4.0	-1.6	1.6	5.0	9.6	12.6	28.0
Essen N 51.5, E 7.0	Az	138.2	149.8	153.6	159.3	164.6	168.6	172.4	177.5	182.8	190.2	195.2	223.9
	El	22.6	26.7	27.8	29.1	30.0	30.5	30.8	31.0	31.0	30.6	30.0	21.7
	Sk	-24.5	-11.3	-9.1	-5.7	-2.5	-7.1	-4.8	-1.6	1.8	6.3	9.4	25.6
Frankfurt am Main N 50.1, E 8.7	Az	139.4	151.3	155.2	161.0	166.4	170.5	174.4	179.6	185.1	192.6	197.6	226.2
	El	24.5	28.6	29.7	30.9	31.7	32.2	32.4	32.6	32.5	31.8	31.1	22.0
	Sk	-24.7	-11.0	-8.6	-5.1	-1.7	-6.1	-3.6	-0.3	3.3	8.0	11.2	27.6
Hamburg N 53.6, E 10.0	Az	142.2	153.9	157.8	163.4	168.6	172.6	176.3	181.2	186.5	193.6	198.4	226.2
	El	22.2	25.7	26.5	27.5	28.2	28.5	28.7	28.8	28.6	28.0	27.2	18.8
	Sk	-21.3	-8.1	-6.0	-2.8	0.3	-4.4	-2.2	0.7	3.8	8.0	10.8	25.4
Hannover N 52.4, E 9.7	Az	141.4	153.2	157.1	162.8	168.1	172.1	175.8	180.9	186.2	193.4	198.3	226.3
	El	23.0	26.7	27.7	28.7	29.4	29.8	30.0	30.1	29.9	29.3	28.5	19.8
	Sk	-22.4	-9.0	-6.7	-3.4	-0.2	-4.8	-2.5	0.5	3.8	8.1	11.1	26.2
Kiel N 54.3, E 10.1	Az	142.5	154.2	158.1	163.7	168.8	172.8	176.4	181.4	186.5	193.6	198.4	226.0
	El	21.6	25.0	25.9	26.8	27.5	27.8	28.0	28.0	27.8	27.2	26.5	18.3
	Sk	-20.8	-7.7	-5.6	-2.5	0.5	-4.2	-2.1	0.8	3.8	7.9	10.6	24.8
Köln N 51.0, E 7.0	Az	138.0	149.6	153.5	159.1	164.5	168.5	172.3	177.4	182.8	190.3	195.3	224.1
	El	23.0	27.2	28.3	29.6	30.5	31.0	31.3	31.6	31.6	31.1	30.5	22.1
	Sk	-24.9	-11.6	-9.3	-6.0	-2.7	-7.2	-4.8	-1.6	1.8	6.4	9.6	26.0
Leipzig N 51.3, E 12.4	Az	144.0	156.1	160.1	165.9	171.3	175.4	179.2	184.4	189.7	197.0	201.9	229.5
	El	25.1	28.6	29.4	30.4	30.9	31.2	31.3	31.2	30.8	29.9	29.0	19.3
	Sk	-21.6	-7.7	-5.3	-1.8	1.6	-2.9	-0.5	2.7	6.1	10.5	13.5	28.4
Lüneburg N 53.3, E 10.4	Az	142.5	154.3	158.2	163.8	169.1	173.0	176.8	181.8	187.0	194.1	199.0	226.7
	El	22.6	26.1	26.9	27.9	28.6	28.9	29.1	29.1	28.9	28.2	27.5	18.8
	Sk	-21.3	-8.0	-5.8	-2.6	0.5	-4.2	-1.9	1.0	4.2	8.4	11.2	25.8
Magdeburg N 52.1, E 11.6	Az	143.4	155.4	159.3	165.1	170.4	174.4	178.2	183.3	188.6	195.8	200.7	228.4
	El	24.1	27.6	28.4	29.4	30.0	30.3	30.4	30.4	30.1	29.3	28.4	19.1
	Sk	-21.5	-7.8	-5.5	-2.1	1.1	-3.4	-1.1	2.0	5.3	9.6	12.5	27.3
Mainz N 50.0, E 8.3	Az	139.0	150.8	154.7	160.5	165.9	170.0	173.9	179.1	184.6	192.1	197.2	225.9
	El	24.4	28.6	29.6	30.9	31.8	32.2	32.5	32.7	32.6	32.0	31.3	22.3
	Sk	-25.0	-11.3	-8.9	-5.4	-2.0	-6.4	-3.9	-0.6	2.9	7.7	10.9	27.5
Mannheim N 49.5, E 8.5	Az	139.0	150.8	154.8	160.6	166.1	170.2	174.1	179.3	184.9	192.4	197.5	226.3
	El	24.9	29.1	30.2	31.4	32.3	32.8	33.1	33.2	33.1	32.5	31.8	22.5
	Sk	-25.2	-11.5	-9.1	-5.5	-2.0	-6.4	-3.8	-0.4	3.2	8.0	11.3	28.0
München N 48.1, E 11.6	Az	141.8	154.1	158.2	164.2	169.8	174.1	178.1	183.5	189.1	196.7	201.8	230.0
	El	27.5	31.5	32.5	33.6	34.3	34.6	34.7	34.7	34.4	33.4	32.5	21.9
	Sk	-24.4	-10.0	-7.4	-3.5	0.2	-3.9	-1.3	2.3	6.1	11.1	14.4	30.8
Passau N 49.5, E 13.5	Az	144.1	156.6	160.7	166.8	172.4	176.7	180.7	186.0	191.5	199.0	204.0	231.7
	El	27.9	31.6	32.4	33.4	33.9	34.2	34.2	34.0	33.6	32.5	31.4	20.5
	Sk	-22.8	-8.2	-5.6	-1.7	2.0	-2.2	0.4	4.0	7.6	12.5	15.6	31.3
Stuttgart N 48.8, E 9.2	Az	139.4	151.4	155.4	161.3	166.8	171.0	175.0	180.3	185.8	193.5	198.6	227.3
	El	25.8	30.0	31.1	32.3	33.2	33.6	33.9	34.0	33.8	33.1	32.3	22.7
	Sk	-25.4	-11.4	-8.9	-5.2	-1.6	-5.9	-3.3	0.2	3.8	8.8	12.1	29.0
Wuppertal N 51.3, E 7.2	Az	138.3	150.0	153.8	159.5	164.8	168.8	172.6	177.7	183.1	190.5	195.5	224.2
	El	22.9	27.0	28.0	29.3	30.2	30.7	31.0	31.3	31.2	30.8	30.2	21.8
	Sk	-24.6	-11.3	-9.0	-5.7	-2.5	-7.0	-4.6	-1.4	1.9	6.5	9.6	25.8



# Great Britain

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		Turksat	ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 9	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W	Hispasat
		42.0° East	31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	9.0° East	4.8° East	0.8° West	5.0° West	30.0° West
Aberdeen N 57.1, W 2.1	Az	130.9	141.7	145.2	150.3	155.1	158.7	162.2	166.9	171.8	178.5	183.5	212.2
	El	14.5	18.7	19.8	21.2	22.4	23.1	23.7	24.3	24.7	25.0	25.0	20.5
	Sk	-24.2	-12.2	-10.6	-8.1	-5.7	-11.4	-9.6	-7.1	3.1	-0.8	1.9	16.8
Belfast N 54.6, W 5.9	Az	126.4	136.8	140.3	145.4	150.1	153.8	157.2	161.9	167.0	173.8	178.9	208.8
	El	14.4	19.2	20.5	22.3	23.7	24.6	25.4	26.2	27.0	27.5	27.7	24.0
	Sk	-27.8	-15.9	-14.2	-11.7	-9.3	-14.9	-13.0	-10.4	0.0	-3.6	-0.6	16.2
Birmingham N 52.5, W 1.8	Az	129.6	140.4	144.0	149.2	154.2	158.0	161.6	166.5	171.7	178.7	184.0	214.1
	El	17.8	22.6	23.9	25.6	26.9	27.7	28.4	29.1	29.7	30.0	29.9	24.5
	Sk	-28.0	-15.3	-13.5	-10.7	-7.9	-13.2	-11.1	-8.2	2.5	-0.8	2.5	19.9
Bradford N 53.8, W 1.8	Az	130.1	140.9	144.4	149.6	154.6	158.3	161.9	166.7	171.8	178.8	184.0	213.6
	El	16.9	21.5	22.7	24.4	25.6	26.4	27.1	27.8	28.3	28.6	28.5	23.4
	Sk	-26.9	-14.4	-12.6	-9.9	-7.2	-12.6	-10.6	-7.8	2.7	-0.7	2.3	19.1
Bristol N 51.5, W 2.6	Az	128.4	139.1	142.7	148.0	152.9	156.7	160.4	165.3	170.6	177.7	183.1	213.5
	El	18.0	23.0	24.4	26.2	27.6	28.5	29.3	30.1	30.6	31.0	31.0	25.7
	Sk	-29.2	-16.5	-14.7	-11.8	-9.0	-14.2	-12.1	-9.1	1.7	-1.4	1.9	20.1
Cardiff N 51.5, W 3.2	Az	127.9	138.5	142.1	147.3	152.3	156.1	159.7	164.6	169.9	177.0	182.4	212.9
	El	17.8	22.8	24.2	26.0	27.5	28.4	29.2	30.0	30.6	31.0	31.1	25.9
	Sk	-29.4	-16.9	-15.0	-12.2	-9.4	-14.6	-12.5	-9.5	1.2	-1.9	1.5	19.8
Dover N 51.1, E 1.3	Az	132.1	143.2	146.9	152.3	157.5	161.4	165.1	170.1	175.5	182.7	188.1	218.0
	El	20.3	25.0	26.3	27.9	29.1	29.9	30.5	31.0	31.4	31.5	31.2	24.5
	Sk	-27.8	-14.6	-12.6	-9.5	-6.4	-11.6	-9.3	-6.2	4.7	1.7	5.1	22.7
Edinburgh N 56.0, W 3.2	Az	129.5	140.1	143.6	148.8	153.6	157.2	160.7	165.4	170.4	177.1	182.2	211.4
	El	14.8	19.2	20.4	21.9	23.1	23.9	24.6	25.3	25.8	26.2	26.2	21.9
	Sk	-25.6	-13.5	-11.9	-9.4	-6.9	-12.5	-10.7	-8.1	2.1	-1.6	1.2	16.9
Glasgow N 55.9, W 4.2	Az	128.5	139.1	142.5	147.6	152.4	156.0	159.5	164.2	169.2	175.9	181.0	210.3
	El	14.4	18.9	20.1	21.7	23.0	23.8	24.5	25.2	25.8	26.2	26.3	22.3
	Sk	-26.0	-14.1	-12.4	-10.0	-7.6	-13.2	-11.3	-8.8	1.5	-2.3	0.5	16.4
Greenwich N 51.48, E 0.0	Az	131.0	141.9	145.6	150.9	156.0	159.9	163.6	168.6	173.9	181.0	186.4	216.4
	El	19.4	24.1	25.4	27.1	28.4	29.2	29.8	30.5	30.9	31.1	30.9	24.7
	Sk	-28.0	-15.1	-13.1	-10.1	-7.2	-12.4	-10.2	-7.1	3.7	0.6	4.0	21.7
Iverness N 57.5, W 4.2	Az	129.0	139.6	143.0	148.1	152.8	156.4	159.9	164.5	169.4	176.0	181.0	209.8
	El	13.4	17.6	18.7	20.3	21.5	22.2	22.9	23.6	24.1	24.5	24.6	20.8
	Sk	-24.7	-12.9	-11.4	-9.0	-6.7	-12.4	-10.7	-8.3	1.8	-2.2	0.5	15.5
Kingston upon hull N 53.75, W 0.3	Az	131.5	142.4	146.0	151.3	156.3	160.0	163.6	168.5	173.7	180.6	185.8	216.2
	El	17.6	22.1	23.3	24.9	26.1	26.8	27.4	28.0	28.4	28.6	28.5	22.9
	Sk	-26.3	-13.6	-11.8	-9.0	-6.3	-11.7	-9.6	-6.8	3.8	0.3	3.4	20.0
Leeds N 53.8, W 1.6	Az	130.3	141.1	144.6	149.9	154.8	158.5	162.1	166.9	172.1	179.0	184.2	213.8
	El	17.0	21.6	22.8	24.4	25.7	26.5	27.1	27.8	28.3	28.6	28.5	23.3
	Sk	-26.8	-14.3	-12.5	-9.8	-7.1	-12.5	-10.5	-7.7	2.8	-0.6	2.5	19.2
Liverpool N 53.4, W 2.9	Az	128.9	139.5	143.1	148.3	153.2	156.9	160.5	165.3	170.4	177.4	182.6	212.5
	El	16.7	21.4	22.7	24.4	25.7	26.6	27.3	28.0	28.6	29.0	29.0	24.1
	Sk	-27.7	-15.3	-13.5	-10.8	-8.1	-13.5	-11.5	-8.7	1.8	-1.6	1.6	18.7
London N 51.5, W 0.2	Az	130.8	141.7	145.4	150.7	155.8	159.6	163.3	168.3	173.6	180.8	186.1	216.2
	El	19.3	24.0	25.3	27.0	28.3	29.1	29.8	30.4	30.9	31.1	30.9	24.8
	Sk	-28.1	-15.2	-13.2	-10.2	-7.3	-12.5	-10.3	-7.3	3.5	0.5	3.8	21.6
Manchester N 53.5, W 2.3	Az	129.5	140.2	143.8	149.0	153.9	157.6	161.2	166.0	171.2	178.1	183.4	213.2
	El	16.9	21.5	22.8	24.5	25.8	26.6	27.3	28.0	28.5	28.9	28.8	23.8
	Sk	-27.3	-14.9	-13.1	-10.4	-7.7	-13.1	-11.1	-8.3	2.3	-1.1	2.0	19.0
Newcastle upon Tyne N 55.0, W 1.6	Az	130.7	141.5	145.0	150.2	155.1	158.8	162.4	167.1	172.2	179.0	184.2	213.4
	El	16.2	20.6	21.8	23.3	24.5	25.3	25.9	26.5	27.0	27.3	27.2	22.3
	Sk	-25.8	-13.4	-11.7	-9.0	-6.5	-12.0	-10.0	-7.3	3.0	-0.6	2.4	18.4
Norwich N 52.6, E 1.3	Az	132.7	143.8	147.4	152.8	157.9	161.7	165.4	170.3	175.6	182.6	187.9	217.4
	El	19.2	23.7	24.9	26.4	27.6	28.3	28.9	29.4	29.8	29.8	29.6	23.3
	Sk	-26.5	-13.5	-11.6	-8.6	-5.7	-11.0	-8.8	-5.9	4.8	1.6	4.8	21.7
Nottingham N 52.9, W 1.3	Az	130.2	141.1	144.7	149.9	154.9	158.7	162.3	167.2	172.4	179.4	184.6	214.5
	El	17.8	22.4	23.7	25.3	26.6	27.5	28.1	28.8	29.3	29.5	29.4	24.0
	Sk	-27.4	-14.8	-12.9	-10.1	-7.3	-12.7	-10.6	-7.7	2.9	-0.4	2.8	20.0
Portsmouth N 50.8, W 1.1	Az	129.6	140.5	144.1	149.4	154.5	158.4	162.0	167.1	172.4	179.6	185.0	215.5
	El	19.3	24.2	25.6	27.4	28.7	29.6	30.3	31.0	31.6	31.8	31.7	25.8
	Sk	-29.1	-16.2	-14.3	-11.3	-8.3	-13.5	-11.2	-8.1	2.7	-0.2	3.2	21.5
Sheffield N 53.4, W 1.5	Az	130.2	141.0	144.6	149.9	154.8	158.6	162.1	167.0	172.2	179.1	184.4	214.1
	El	17.3	21.9	23.2	24.8	26.1	26.9	27.6	28.2	28.7	29.0	28.9	23.6
	Sk	-27.1	-14.5	-12.7	-9.9	-7.2	-12.6	-10.5	-7.7	2.8	-0.5	2.6	19.5
Southampton N 50.9, W 1.4	Az	129.4	140.2	143.8	149.1	154.2	158.0	161.7	166.7	172.0	179.2	184.6	215.1
	El	19.1	24.0	25.4	27.2	28.6	29.4	30.1	30.9	31.4	31.7	31.6	25.8
	Sk	-29.2	-16.3	-14.4	-11.4	-8.5	-13.7	-11.4	-8.4	2.5	-0.5	2.9	21.3
Swansea N 51.6, W 4.0	Az	127.1	137.7	141.2	146.4	151.3	155.1	158.7	163.6	168.8	175.9	181.3	211.9
	El	17.3	22.3	23.8	25.6	27.1	28.0	28.8	29.7	30.4	30.9	30.9	26.1
	Sk	-29.7	-17.2	-15.4	-12.6	-9.8	-15.2	-13.1	-10.1	0.6	-2.5	0.8	19.2
Wolverhampton N 52.6, W 2.2	Az	129.3	140.0	143.6	148.8	153.7	157.5	161.1	166.0	171.2	178.2	183.5	213.6
	El	17.5	22.3	23.6	25.3	26.7	27.5	28.2	29.0	29.5	29.9	29.8	24.6
	Sk	-28.1	-15.5	-13.7	-10.8	-8.1	-13.4	-11.3	-8.5	2.2	-1.1	2.1	19.6
York N 53.95, W 1.1	Az	130.9	141.7	145.3	150.5	155.4	159.2	162.8	167.6	172.7	179.7	184.8	214.4
	El	17.2	21.7	22.9	24.4	25.7	26.5	27.1	27.7	28.2	28.4	28.3	23.0
	Sk	-26.4	-13.9	-12.1	-9.3	-6.7	-12.1	-10.0	-7.3	3.2	-0.2	2.9	19.4

# Italy

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		Turksat	ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Holbird 13	Eutelsat 9	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W	Hispasat
		42.0° East	31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	9.0° East	4.8° East	0.8° West	5.0° West	30.0° West
Ancona N 43.6, E 13.5	Az	141.8	154.8	159.2	165.7	171.8	176.4	180.7	186.5	192.5	200.6	205.9	234.0
	El	32.2	36.6	37.6	38.7	39.4	39.7	39.7	39.5	39.0	37.6	36.4	23.7
	Sk	-26.6	-11.0	-7.9	-3.3	1.1	-2.6	0.5	4.7	9.0	14.7	18.4	35.9
Asciiano N 43.2, E 11.5	Az	139.3	152.0	156.3	162.8	168.8	173.4	177.8	183.7	189.7	197.9	203.4	232.3
	El	31.5	36.2	37.4	38.7	39.6	40.0	40.1	40.1	39.7	38.6	37.4	25.2
	Sk	-28.4	-13.0	-10.0	-5.5	-1.1	-4.8	-1.6	2.7	7.1	13.0	16.8	35.2
Bari N 41.1, E 16.9	Az	144.5	158.4	163.1	170.0	176.5	181.4	185.9	191.9	198.1	206.2	211.5	238.4
	El	36.0	40.2	41.1	42.0	42.4	42.5	42.3	41.8	40.9	39.1	37.5	23.0
	Sk	-25.9	-9.1	-5.7	-0.5	4.4	1.0	4.5	9.0	13.5	19.4	23.2	39.9
Bologna N 44.5, E 11.3	Az	139.7	152.3	156.6	162.9	168.8	173.3	177.6	183.3	189.2	197.3	202.7	231.4
	El	30.3	34.9	36.0	37.3	38.1	38.5	38.7	38.7	38.3	37.3	36.2	24.5
	Sk	-27.5	-12.4	-9.5	-5.1	-1.0	-4.8	-1.7	2.3	6.6	12.2	15.9	33.9
Bolzano (Bozen) N 46.5, E 11.3	Az	140.7	153.1	157.3	163.4	169.2	173.5	177.7	183.2	188.9	196.7	202.0	230.5
	El	28.7	33.0	34.0	35.2	36.0	36.3	36.5	36.5	36.1	35.2	34.2	23.1
	Sk	-25.9	-11.1	-8.4	-4.3	-0.4	-4.5	-1.6	2.2	6.1	11.4	14.9	32.1
Cagliari N 39.3, E 9.1	Az	134.4	147.0	151.3	157.9	164.3	169.2	173.9	180.2	186.8	195.7	201.6	232.1
	El	33.3	38.9	40.4	42.1	43.3	43.9	44.3	44.5	44.3	43.3	42.2	29.3
	Sk	-33.6	-18.0	-14.8	-9.9	-5.1	-8.4	-4.8	0.1	5.2	12.1	16.6	37.6
Catania N 37.5, E 15.1	Az	140.2	154.2	159.1	166.4	173.3	178.5	183.5	190.0	196.6	205.4	211.0	238.8
	El	38.2	43.2	44.4	45.6	46.3	46.5	46.5	46.1	45.2	43.4	41.7	26.3
	Sk	-30.5	-13.2	-9.5	-3.8	1.7	-1.2	2.7	7.9	13.1	19.9	24.1	42.7
Catanzaro N 38.9, E 16.6	Az	142.9	157.0	161.9	169.1	175.9	181.0	185.7	192.0	198.4	206.8	212.2	239.3
	El	37.8	42.4	43.4	44.4	44.9	45.0	44.8	44.3	43.3	41.4	39.7	24.4
	Sk	-28.0	-10.7	-7.0	-1.5	3.8	0.7	4.5	9.3	14.2	20.5	24.5	42.0
Ferrara N 44.8, E 11.6	Az	140.2	152.8	157.1	163.4	169.3	173.8	178.0	183.7	189.6	197.6	202.9	231.6
	El	30.2	34.7	35.8	37.0	37.8	38.2	38.4	38.3	37.9	36.9	35.8	24.1
	Sk	-27.0	-11.9	-9.1	-4.7	-0.6	-4.4	-1.4	2.6	6.8	12.4	16.1	33.8
Firenze (Florenz) N 43.8, E 11.3	Az	139.4	152.0	156.3	162.7	168.7	173.2	177.5	183.3	189.4	197.5	202.9	231.8
	El	30.9	35.6	36.7	38.0	38.9	39.3	39.5	39.4	39.1	38.0	36.9	25.0
	Sk	-28.0	-12.8	-9.9	-5.4	-1.2	-4.9	-1.8	2.4	6.7	12.5	16.3	34.5
Genova (Genoa) N 44.4, E 8.9	Az	137.0	149.3	153.4	159.6	165.4	169.9	174.2	179.9	185.9	194.0	199.5	229.1
	El	29.2	34.1	35.3	36.8	37.8	38.3	38.7	38.8	38.7	37.9	37.0	26.0
	Sk	-29.2	-14.4	-11.7	-7.4	-3.4	-7.2	-4.2	-0.1	4.2	10.0	13.8	32.7
Lecce N 40.3, E 18.2	Az	145.7	159.9	164.8	171.8	178.5	183.4	188.0	194.1	200.2	208.3	213.5	240.0
	El	37.3	41.4	42.3	43.1	43.4	43.3	43.1	42.4	41.4	39.4	37.6	22.5
	Sk	-25.5	-8.2	-4.6	0.8	5.8	2.6	6.1	10.7	15.3	21.2	24.9	41.3
Milano (Mailand) N 45.5, E 9.2	Az	137.9	150.1	154.2	160.3	166.1	170.5	174.7	180.3	186.2	194.2	199.5	228.8
	El	28.5	33.2	34.3	35.7	36.7	37.2	37.5	37.6	37.4	36.7	35.8	25.0
	Sk	-28.0	-13.5	-10.7	-6.6	-2.7	-6.6	-3.7	0.2	4.3	9.9	13.6	31.8
Napoli (Neapel) N 40.8, E 14.3	Az	141.2	154.7	159.3	166.1	172.5	177.4	182.0	188.1	194.4	202.7	208.2	236.2
	El	35.0	39.6	40.7	41.9	42.6	42.8	42.8	42.5	41.8	40.3	38.8	24.9
	Sk	-28.3	-11.9	-8.6	-3.5	1.4	-2.0	1.5	6.1	10.8	17.0	21.0	39.0
Padova N 45.3, E 11.6	Az	140.5	153.0	157.3	163.5	169.4	173.8	178.0	183.7	189.5	197.5	202.8	231.3
	El	29.8	34.2	35.3	36.5	37.3	37.7	37.8	37.8	37.4	36.4	35.3	23.8
	Sk	-26.6	-11.6	-8.8	-4.5	-0.5	-4.3	-1.4	2.6	6.7	12.2	15.8	33.3
Palermo N 38.1, E 13.4	Az	138.5	152.1	156.8	163.9	170.7	175.8	180.7	187.1	193.8	202.6	208.3	236.9
	El	36.7	42.0	43.2	44.6	45.4	45.8	45.9	45.6	44.9	43.3	41.8	27.1
	Sk	-31.4	-14.6	-11.0	-5.6	-0.3	-3.3	0.5	5.6	10.8	17.6	21.9	41.2
Pescara N 42.5, E 14.2	Az	142.0	155.3	159.7	166.4	172.6	177.3	181.8	187.7	193.8	201.9	207.3	235.2
	El	33.5	37.9	38.9	40.0	40.7	40.9	40.9	40.7	40.0	38.6	37.2	24.0
	Sk	-27.0	-11.0	-7.8	-3.0	1.6	-2.0	1.3	5.7	10.1	16.0	19.7	37.3
Pisa N 43.7, E 10.4	Az	138.3	150.8	155.1	161.4	167.4	171.9	176.2	182.0	188.1	196.3	201.7	230.9
	El	30.5	35.3	36.5	37.9	38.8	39.3	39.5	39.6	39.3	38.3	37.3	25.6
	Sk	-28.7	-13.6	-10.7	-6.3	-2.1	-5.8	-2.7	1.5	5.8	11.7	15.5	34.2
Roma (Rom) N 41.9, E 12.5	Az	139.7	152.7	157.2	163.8	170.0	174.8	179.3	185.2	191.5	199.8	205.3	233.9
	El	33.1	37.9	39.0	40.3	41.1	41.5	41.6	41.5	41.0	39.7	38.4	25.4
	Sk	-28.8	-12.9	-9.8	-5.0	-0.4	-3.9	-0.6	3.9	8.5	14.6	18.5	37.0
Torino (Turin) N 45.1, E 7.7	Az	136.1	148.1	152.2	158.2	164.0	168.4	172.5	178.2	184.1	192.2	197.7	227.5
	El	28.0	32.9	34.2	35.7	36.8	37.4	37.8	38.0	38.0	37.3	36.5	26.2
	Sk	-29.3	-14.9	-12.2	-8.2	-4.2	-8.2	-5.3	-1.3	2.9	8.6	12.4	31.4
Trento (Trient) N 46.1, E 11.1	Az	140.3	152.7	156.9	163.0	168.8	173.2	177.4	182.9	188.7	196.6	201.8	230.4
	El	28.9	33.3	34.3	35.6	36.4	36.7	36.9	36.9	36.6	35.6	34.6	23.5
	Sk	-26.3	-11.5	-8.8	-4.7	-0.7	-4.7	-1.8	2.0	6.0	11.4	14.9	32.3
Trieste N 45.6, E 13.7	Az	143.0	155.8	160.1	166.4	172.3	176.8	181.0	186.6	192.4	200.2	205.4	233.2
	El	30.5	34.6	35.6	36.6	37.2	37.5	37.5	37.3	36.8	35.5	34.3	22.3
	Sk	-24.9	-9.7	-6.8	-2.5	1.6	-2.3	0.7	4.6	8.6	14.0	17.4	34.1
Venezia (Venedig) N 45.4, E 12.3	Az	141.3	153.9	158.2	164.5	170.4	174.8	179.0	184.6	190.5	198.4	203.6	232.0
	El	30.1	34.4	35.4	36.6	37.3	37.6	37.7	37.6	37.2	36.1	35.0	23.3
	Sk	-26.0	-11.0	-8.1	-3.8	0.2	-3.6	-0.7	3.3	7.3	12.8	16.3	33.6
Verona N 45.3, E 11.0	Az	139.8	152.3	156.5	162.7	168.5	173.0	177.2	182.8	188.7	196.7	202.0	230.7
	El	29.5	34.0	35.1	36.4	37.2	37.6	37.8	37.8	37.5	36.5	35.5	24.1
	Sk	-27.0	-12.1	-9.3	-5.1	-1.0	-4.9	-2.0	2.0	6.1	11.6	15.3	33.0

# Luxembourg

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 10	Eutelsat 9	Eutelsat 7	SES 5/ ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W
		31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	10.0° East	9.0° East	7.0° East	4.8° East	0.8° West	5.0° West
Differdange N 49.5, E 5.9	Az	147.8	151.7	157.4	162.7	166.8	170.7	174.6	175.9	178.6	181.5	189.0	194.2
	El	28.2	29.4	30.8	31.8	32.4	32.8	33.1	33.2	33.2	33.2	32.9	32.3
	Sk	-13.3	-11.0	-7.5	-4.1	-8.5	-6.0	-3.5	-2.6	-0.9	0.9	5.9	9.2
Dudelange N 49.5, E 6.1	Az	148.0	151.9	157.6	163.0	167.1	171.0	174.9	176.2	178.8	181.7	189.3	194.5
	El	28.3	29.4	30.8	31.9	32.4	32.9	33.1	33.2	33.2	33.2	32.8	32.2
	Sk	-13.1	-10.8	-7.3	-4.0	-8.4	-5.9	-3.3	-2.5	-0.8	1.1	6.0	9.3
Esch N 49.5, E 6.0	Az	147.9	151.8	157.5	162.9	166.9	170.8	174.8	176.1	178.7	181.6	189.2	194.3
	El	28.2	29.4	30.8	31.8	32.4	32.8	33.1	33.2	33.2	33.2	32.8	32.3
	Sk	-13.2	-10.9	-7.4	-4.0	-8.4	-5.9	-3.4	-2.6	-0.9	1.0	5.9	9.3
Ettelbruck N 49.8, E 6.1	Az	148.1	152.0	157.7	163.1	167.1	171.0	174.9	176.2	178.8	181.7	189.3	194.4
	El	28.0	29.1	30.5	31.5	32.1	32.5	32.8	32.8	32.9	32.9	32.5	31.9
	Sk	-12.9	-10.6	-7.2	-3.8	-8.3	-5.8	-3.3	-2.5	-0.8	1.1	6.0	9.2
Luxembourg N 49.6, E 6.2	Az	148.2	152.1	157.8	163.1	167.2	171.1	175.0	176.3	179.0	181.8	189.4	194.6
	El	28.2	29.4	30.8	31.8	32.4	32.8	33.0	33.1	33.1	33.1	32.7	32.1
	Sk	-13.0	-10.7	-7.2	-3.8	-8.2	-5.8	-3.2	-2.4	-0.7	1.2	6.1	9.4
Petange N 49.6, E 5.9	Az	147.8	151.7	157.4	162.8	166.8	170.7	174.6	175.9	178.6	181.4	189.0	194.2
	El	28.1	29.3	30.7	31.7	32.3	32.7	33.0	33.0	33.1	33.1	32.7	32.2
	Sk	-13.2	-10.9	-7.4	-4.1	-8.5	-6.0	-3.5	-2.6	-0.9	0.9	5.8	9.1
Remich N 49.6, E 6.4	Az	148.4	152.3	158.0	163.4	167.5	171.4	175.3	176.6	179.2	182.1	189.7	194.8
	El	28.3	29.4	30.8	31.8	32.4	32.8	33.0	33.1	33.1	33.1	32.7	32.1
	Sk	-12.9	-10.5	-7.1	-3.7	-8.1	-5.6	-3.1	-2.2	-0.5	1.4	6.3	9.6

# Netherlands

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 10	Eutelsat 9	Eutelsat 7	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W
		31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	10.0° East	9.0° East	7.0° East	4.8° East	0.8° West	5.0° West
Alkmar N 52.7, E 4.7	Az	147.6	151.3	156.8	162.0	165.9	169.6	173.4	174.6	177.1	179.9	187.2	192.1
	El	24.9	25.9	27.3	28.3	28.8	29.3	29.6	29.6	29.7	29.8	29.5	29.1
	Sk	-12.0	-9.9	-6.8	-3.8	-8.5	-6.3	-4.0	-3.3	-1.8	-0.1	4.3	7.3
Almelo N 52.3, E 6.7	Az	149.7	153.5	159.1	164.4	168.3	172.1	175.8	177.1	179.6	182.4	189.7	194.7
	El	25.9	26.9	28.2	29.1	29.6	29.9	30.1	30.2	30.2	30.2	29.8	29.2
	Sk	-11.0	-8.8	-5.6	-2.5	-7.1	-4.9	-2.6	-1.8	-0.2	1.5	5.9	8.9
Amsterdam N 52.4, E 4.9	Az	147.7	151.5	157.0	162.2	166.1	169.8	173.6	174.8	177.4	180.1	187.4	192.4
	El	25.2	26.3	27.6	28.6	29.2	29.6	29.9	30.0	30.1	30.1	29.8	29.4
	Sk	-12.0	-9.9	-6.8	-3.8	-8.4	-6.2	-3.9	-3.2	-1.6	0.1	4.5	7.5
Apeldoorn N 52.2, E 6.0	Az	148.9	152.7	158.3	163.5	167.4	171.2	174.9	176.2	178.7	181.5	188.8	193.8
	El	25.8	26.8	28.1	29.0	29.6	29.9	30.2	30.2	30.3	30.3	29.9	29.4
	Sk	-11.5	-9.3	-6.1	-3.0	-7.7	-5.4	-3.1	-2.3	-0.8	0.9	5.4	8.4
Arnhem N 52.0, E 5.9	Az	148.7	152.5	158.1	163.3	167.3	171.0	174.8	176.1	178.6	181.4	188.7	193.7
	El	25.9	27.0	28.3	29.2	29.8	30.1	30.4	30.4	30.5	30.5	30.2	29.6
	Sk	-11.7	-9.5	-6.3	-3.2	-7.8	-5.5	-3.2	-2.4	-0.9	0.9	5.4	8.4
Breda N 51.6, E 4.7	Az	147.2	151.0	156.5	161.7	165.7	169.5	173.3	174.5	177.1	179.9	187.3	192.3
	El	25.9	27.0	28.4	29.4	30.0	30.4	30.7	30.8	30.9	31.0	30.7	30.2
	Sk	-12.7	-10.5	-7.3	-4.2	-8.8	-6.5	-4.2	-3.4	-1.8	-0.1	4.5	7.6
Den Haag N 52.1, E 4.3	Az	146.9	150.7	156.2	161.4	165.3	169.0	172.8	174.1	176.6	179.4	186.7	191.7
	El	25.3	26.4	27.8	28.8	29.4	29.9	30.2	30.2	30.4	30.4	30.2	29.8
	Sk	-12.6	-10.5	-7.4	-4.3	-9.0	-6.7	-4.4	-3.7	-2.1	-0.4	4.1	7.2
Eindhoven N 51.4, E 5.5	Az	148.0	151.8	157.4	162.7	166.7	170.4	174.3	175.5	178.1	180.9	188.3	193.3
	El	26.3	27.4	28.8	29.8	30.3	30.7	31.0	31.1	31.2	31.2	30.8	30.3
	Sk	-12.3	-10.1	-6.9	-3.7	-8.3	-6.0	-3.6	-2.8	-1.2	0.6	5.2	8.3
Emmen N 52.8, E 6.9	Az	150.1	153.9	159.5	164.7	168.6	172.4	176.1	177.4	179.9	182.6	189.9	194.8
	El	25.5	26.5	27.7	28.6	29.1	29.4	29.6	29.6	29.7	29.6	29.2	28.6
	Sk	-10.5	-8.4	-5.2	-2.2	-6.9	-4.6	-2.4	-1.6	-0.1	1.6	6.0	8.9
Enschede N 52.2, E 6.9	Az	149.9	153.7	159.3	164.6	168.5	172.3	176.1	177.3	179.9	182.7	190.0	194.9
	El	26.1	27.1	28.3	29.2	29.7	30.0	30.2	30.3	30.3	30.3	29.8	29.3
	Sk	-10.9	-8.7	-5.5	-2.4	-7.0	-4.7	-2.4	-1.6	-0.1	1.6	6.1	9.1
Groningen N 53.0, E 6.6	Az	149.9	153.7	159.2	164.4	168.3	172.0	175.8	177.0	179.5	182.3	189.5	194.4
	El	25.0	26.0	27.2	28.1	28.6	28.9	29.1	29.2	29.2	29.2	28.8	28.3
	Sk	-10.5	-8.4	-5.3	-2.3	-7.0	-4.8	-2.5	-1.8	-0.3	1.4	5.7	8.6
Harlem N 52.4, E 4.6	Az	147.4	151.1	156.6	161.8	165.7	169.4	173.2	174.5	177.0	179.8	187.1	192.1
	El	25.1	26.2	27.6	28.6	29.1	29.6	29.9	29.9	30.0	30.1	29.9	29.4
	Sk	-12.2	-10.1	-7.0	-4.0	-8.7	-6.4	-4.2	-3.4	-1.9	-0.2	4.3	7.3
Hoogeveen N 52.7, E 6.5	Az	149.6	153.4	159.0	164.2	168.1	171.9	175.6	176.9	179.4	182.1	189.4	194.4
	El	25.5	26.5	27.7	28.6	29.1	29.5	29.7	29.7	29.8	29.7	29.4	28.8
	Sk	-10.9	-8.7	-5.6	-2.5	-7.2	-4.9	-2.7	-1.9	-0.4	1.3	5.7	8.6
Leeuwarden N 53.2, E 5.8	Az	149.0	152.8	158.3	163.4	167.3	171.0	174.8	176.0	178.5	181.3	188.5	193.4
	El	24.8	25.8	27.1	28.0	28.5	28.9	29.1	29.1	29.2	29.2	28.9	28.4
	Sk	-11.0	-8.9	-5.8	-2.8	-7.6	-5.4	-3.1	-2.4	-0.9	0.8	5.1	8.0
Maastricht N 50.8, E 5.7	Az	148.0	151.9	157.5	162.8	166.8	170.6	174.5	175.7	178.3	181.2	188.6	193.7
	El	26.9	28.1	29.4	30.4	31.0	31.4	31.7	31.7	31.8	31.8	31.5	30.9
	Sk	-12.5	-10.3	-7.0	-3.8	-8.3	-5.9	-3.5	-2.7	-1.1	0.7	5.4	8.6
Nijmegen N 51.8, E 5.9	Az	148.6	152.4	158.0	163.3	167.2	171.0	174.8	176.1	178.6	181.4	188.8	193.8
	El	26.1	27.2	28.5	29.4	30.0	30.4	30.6	30.7	30.7	30.7	30.4	29.9
	Sk	-11.8	-9.6	-6.4	-3.3	-7.9	-5.6	-3.2	-2.4	-0.9	0.9	5.4	8.5
Roermond N 51.2, E 6.0	Az	148.5	152.4	158.0	163.3	167.3	171.1	174.9	176.2	178.7	181.5	189.0	194.0
	El	26.7	27.8	29.1	30.1	30.6	31.0	31.3	31.3	31.4	31.4	31.0	30.5
	Sk	-12.1	-9.9	-6.6	-3.4	-8.0	-5.6	-3.2	-2.4	-0.8	1.0	5.6	8.7
Rotterdam N 51.9, E 4.5	Az	147.1	150.9	156.4	161.6	165.5	169.3	173.0	174.3	176.8	179.6	187.0	192.0
	El	25.5	26.6	28.0	29.0	29.7	30.1	30.4	30.5	30.6	30.6	30.4	30.0
	Sk	-12.6	-10.5	-7.3	-4.3	-8.9	-6.6	-4.3	-3.5	-2.0	-0.2	4.3	7.4
Tilburg N 51.6, E 5.1	Az	147.7	151.4	157.0	162.2	166.2	170.0	173.8	175.0	177.6	180.4	187.8	192.8
	El	26.0	27.1	28.5	29.5	30.1	30.5	30.8	30.8	30.9	30.9	30.7	30.2
	Sk	-12.4	-10.3	-7.1	-3.9	-8.5	-6.2	-3.9	-3.1	-1.5	0.2	4.8	7.9
Utrecht N 52.1, E 5.1	Az	147.8	151.6	157.1	162.3	166.3	170.0	173.8	175.1	177.6	180.4	187.7	192.7
	El	25.5	26.6	28.0	29.0	29.5	30.0	30.2	30.3	30.4	30.4	30.1	29.7
	Sk	-12.1	-10.0	-6.8	-3.7	-8.4	-6.1	-3.8	-3.0	-1.5	0.2	4.7	7.8
Venlo N 51.3, E 6.2	Az	148.8	152.6	158.2	163.5	167.5	171.3	175.1	176.4	179.0	181.8	189.2	194.2
	El	26.7	27.7	29.1	30.0	30.6	30.9	31.2	31.2	31.3	31.3	30.9	30.3
	Sk	-11.9	-9.7	-6.4	-3.2	-7.8	-5.4	-3.0	-2.2	-0.6	1.1	5.7	8.8
Warden N 53.1, E 5.8	Az	149.0	152.7	158.2	163.4	167.3	171.0	174.8	176.0	178.5	181.3	188.5	193.4
	El	24.9	25.9	27.2	28.1	28.6	29.0	29.2	29.3	29.3	29.3	29.0	28.5
	Sk	-11.0	-9.0	-5.9	-2.9	-7.6	-5.4	-3.2	-2.4	-0.9	0.8	5.1	8.0

# Norway

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutels at 16	Eutelsat Holbird 13	Eutelsat 10	Eutelsat 9	Eutelsat 7	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W
		31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	10.0° East	9.0° East	7.0° East	4.8° East	0.8° West	5.0° West
Ålesund N 62.5, E 6.2	Az	152.0	155.5	160.7	165.4	169.0	172.3	175.7	176.8	179.1	181.6	187.9	192.6
	El	16.3	17.0	17.9	18.5	18.8	19.1	19.2	19.3	19.3	19.3	19.1	18.7
	Sk	-5.0	-3.5	-1.3	0.8	-5.1	-3.5	-2.0	-1.5	-0.4	8.2	3.6	5.8
Arendal N 58.5, E 8.8	Az	153.9	157.6	162.9	167.9	171.6	175.1	178.6	179.8	182.1	184.7	191.2	196.1
	El	20.7	21.4	22.3	22.9	23.2	23.4	23.5	23.5	23.5	23.4	23.0	22.5
	Sk	-5.8	-4.0	-1.3	1.2	-4.4	-2.6	-0.7	-0.1	1.1	10.0	5.8	8.3
Askøy N 60.5, E 5.2	Az	150.4	154.0	159.2	164.0	167.6	171.1	174.5	175.6	177.9	180.5	186.9	191.7
	El	17.9	18.7	19.7	20.4	20.8	21.1	21.3	21.3	21.4	21.4	21.2	20.9
	Sk	-6.6	-5.0	-2.6	-0.3	-6.1	-4.4	-2.7	-2.2	-1.0	7.7	3.4	5.7
Bærum N 59.9, E 10.5	Az	156.1	159.8	165.1	170.0	173.7	177.1	180.6	181.7	184.0	186.6	193.0	197.8
	El	19.7	20.4	21.1	21.6	21.9	22.0	22.0	22.0	22.0	21.9	21.4	20.8
	Sk	-4.2	-2.5	0.1	2.5	-3.2	-1.5	0.3	0.9	2.0	10.8	6.5	8.8
Bergen N 60.4, E 5.3	Az	150.5	154.1	159.3	164.1	167.7	171.2	174.6	175.8	178.1	180.6	187.0	191.8
	El	18.0	18.8	19.8	20.5	20.9	21.2	21.4	21.4	21.5	21.5	21.3	21.0
	Sk	-6.6	-5.0	-2.6	-0.3	-6.0	-4.4	-2.7	-2.1	-1.0	7.8	3.5	5.8
Drammen N 59.7, E 10.2	Az	155.7	159.4	164.7	169.6	173.3	176.8	180.2	181.4	183.7	186.3	192.7	197.5
	El	19.9	20.5	21.3	21.8	22.1	22.2	22.3	22.2	22.2	22.1	21.6	21.0
	Sk	-4.5	-2.7	-0.2	2.3	-3.4	-1.6	0.1	0.7	1.9	10.7	6.4	8.7
Førde N 61.4, E 5.9	Az	151.4	155.0	160.1	164.9	168.5	171.9	175.3	176.5	178.8	181.3	187.6	192.4
	El	17.3	18.0	18.9	19.6	19.9	20.2	20.4	20.4	20.5	20.5	20.2	19.9
	Sk	-5.8	-4.2	-1.9	0.4	-5.5	-3.9	-2.2	-1.7	-0.6	8.1	3.6	5.9
Fredrikstad N 59.2, E 11.0	Az	156.5	160.2	165.5	170.5	174.2	177.7	181.2	182.3	184.7	187.2	193.7	198.5
	El	20.5	21.2	21.9	22.4	22.6	22.8	22.8	22.8	22.7	22.6	22.0	21.4
	Sk	-4.3	-2.5	0.2	2.6	-3.0	-1.2	0.6	1.2	2.4	11.2	7.0	9.3
Gjøvik N 60.8, E 10.7	Az	156.5	160.1	165.4	170.3	173.9	177.4	180.8	182.0	184.2	186.8	193.1	197.9
	El	18.9	19.5	20.3	20.7	20.9	21.1	21.1	21.1	21.0	20.9	20.4	19.8
	Sk	-3.7	-2.0	0.4	2.8	-3.0	-1.3	0.4	1.0	2.1	10.8	6.4	8.6
Halden N 59.1, E 11.5	Az	157.0	160.7	166.1	171.1	174.8	178.3	181.8	182.9	185.2	187.8	194.3	199.1
	El	20.7	21.4	22.1	22.6	22.8	22.9	22.9	22.9	22.8	22.6	22.1	21.4
	Sk	-4.1	-2.3	0.4	2.9	-2.7	-0.9	0.9	1.5	2.7	11.5	7.3	9.7
Hamar N 60.8, E 11.1	Az	156.9	160.6	165.9	170.7	174.4	177.8	181.3	182.4	184.7	187.2	193.6	198.3
	El	19.0	19.6	20.3	20.8	21.0	21.1	21.1	21.1	21.0	20.9	20.4	19.8
	Sk	-3.5	-1.8	0.7	3.0	-2.7	-1.1	0.6	1.2	2.3	11.0	6.6	8.8
Haugesund N 59.4, E 5.3	Az	150.2	153.9	159.1	164.0	167.6	171.1	174.5	175.7	178.0	180.6	187.1	191.9
	El	19.0	19.8	20.8	21.5	22.0	22.3	22.5	22.5	22.6	22.6	22.4	22.0
	Sk	-7.1	-5.5	-3.0	-0.6	-6.3	-4.5	-2.8	-2.2	-1.0	7.8	3.6	6.0
Kristiansand N 58.1, E 8.0	Az	152.9	156.6	161.9	166.9	170.6	174.1	177.6	178.8	181.2	183.8	190.3	195.2
	El	20.9	21.7	22.6	23.2	23.6	23.8	23.9	24.0	24.0	23.9	23.5	23.0
	Sk	-6.4	-4.6	-1.9	0.6	-5.0	-3.1	-1.2	-0.6	0.6	9.5	5.4	8.0
Larvik N 59.1, E 10.0	Az	155.3	159.0	164.4	169.3	173.0	176.5	180.0	181.2	183.5	186.1	192.5	197.3
	El	20.4	21.1	21.9	22.4	22.7	22.8	22.9	22.9	22.8	22.7	22.3	21.7
	Sk	-4.9	-3.1	-0.5	2.0	-3.6	-1.8	0.0	0.6	1.8	10.6	6.4	8.8
Moss N 59.5, E 10.7	Az	156.2	159.9	165.2	170.2	173.9	177.3	180.8	182.0	184.3	186.8	193.3	198.1
	El	20.2	20.8	21.6	22.1	22.3	22.4	22.5	22.5	22.4	22.3	21.8	21.1
	Sk	-4.3	-2.5	0.1	2.5	-3.1	-1.4	0.4	1.0	2.2	11.0	6.7	9.1
Oslo N 60.0, E 10.8	Az	156.4	160.1	165.4	170.3	174.0	177.5	180.9	182.1	184.4	186.9	193.3	198.1
	El	19.7	20.3	21.1	21.6	21.8	21.9	21.9	21.9	21.9	21.7	21.2	20.6
	Sk	-4.0	-2.3	0.3	2.7	-3.0	-1.3	0.5	1.0	2.2	11.0	6.6	8.9
Porsgrunn/Skien N 59.1, E 9.7	Az	155.0	158.7	164.0	169.0	172.7	176.2	179.7	180.8	183.2	185.7	192.2	197.0
	El	20.3	21.0	21.8	22.4	22.7	22.8	22.9	22.9	22.9	22.8	22.3	21.7
	Sk	-5.0	-3.3	-0.6	1.9	-3.8	-2.0	-0.2	0.4	1.6	10.4	6.2	8.6
Ringsaker N 61.0, E 10.8	Az	156.6	160.3	165.6	170.4	174.1	177.5	180.9	182.1	184.3	186.9	193.2	197.9
	El	18.7	19.4	20.1	20.5	20.7	20.9	20.9	20.9	20.8	20.7	20.2	19.6
	Sk	-3.6	-1.9	0.6	2.9	-2.9	-1.2	0.4	1.0	2.1	10.8	6.4	8.6
Sandefjord N 59.4, E 10.2	Az	155.6	159.3	164.6	169.5	173.3	176.7	180.2	181.4	183.7	186.3	192.8	197.6
	El	20.4	21.1	21.9	22.4	22.7	22.9	22.9	22.9	22.8	22.7	22.2	21.6
	Sk	-4.8	-3.0	-0.3	2.2	-3.5	-1.7	0.1	0.7	1.9	10.7	6.5	8.9
Skien N 59.2, E 9.6	Az	154.9	158.6	163.9	168.9	172.6	176.0	179.5	180.7	183.0	185.6	192.1	196.9
	El	20.2	20.9	21.7	22.3	22.6	22.7	22.8	22.8	22.8	22.7	22.2	21.6
	Sk	-5.0	-3.3	-0.7	1.8	-3.8	-2.0	-0.2	0.4	1.6	10.4	6.1	8.6
Stavanger N 59.0, E 5.7	Az	150.6	154.2	159.5	164.4	168.0	171.5	175.0	176.2	178.5	181.1	187.6	192.4
	El	19.4	20.3	21.3	22.0	22.4	22.7	22.9	22.9	23.0	23.0	22.8	22.4
	Sk	-7.2	-5.5	-2.9	-0.5	-6.1	-4.4	-2.6	-2.0	-0.8	8.0	3.9	6.4
Stjørdal N 63.5, E 11.2	Az	157.5	161.1	166.3	171.1	174.6	178.0	181.3	182.5	184.7	187.1	193.4	198.0
	El	16.4	16.9	17.6	18.0	18.1	18.2	18.2	18.2	18.2	18.1	17.6	17.1
	Sk	-2.3	-0.8	1.4	3.5	-2.4	-0.9	0.6	1.1	2.1	10.7	5.9	7.9
Tønsberg N 59.3, E 10.4	Az	155.8	159.5	164.9	169.8	173.5	177.0	180.5	181.6	184.0	186.5	193.0	197.8
	El	20.3	21.0	21.7	22.3	22.5	22.6	22.7	22.7	22.6	22.5	22.0	21.4
	Sk	-4.6	-2.8	-0.2	2.3	-3.3	-1.5	0.2	0.8	2.0	10.8	6.6	9.0
Trondheim N 63.4, E 10.4	Az	156.7	160.3	165.4	170.2	173.7	177.1	180.5	181.6	183.8	186.3	192.5	197.1
	El	16.4	16.9	17.6	18.0	18.2	18.3	18.3	18.3	18.3	18.2	17.8	17.3
	Sk	-2.7	-1.2	1.0	3.1	-2.8	-1.3	0.2	0.7	1.7	10.3	5.6	7.6

# Spain

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		Türksat	ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 9	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W	Hispasat
		42.0° East	31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	9.0° East	4.8° East	0.8° West	5.0° West	30.0° West
Albacete N 39.0, W 1.8	Az	123.3	133.8	137.5	143.1	148.6	153.0	157.2	163.1	169.6	178.7	185.1	220.4
	El	26.3	33.2	35.2	37.8	39.8	41.2	42.3	43.5	44.3	44.8	44.7	36.2
	Sk	-40.5	-27.1	-24.7	-20.8	-16.9	-20.7	-17.5	-13.0	-8.1	-1.0	3.9	30.3
Alicante N 38.4, W 0.5	Az	124.1	134.8	138.6	144.4	150.0	154.5	158.9	164.9	171.5	180.8	187.2	222.3
	El	27.6	34.5	36.4	39.0	41.0	42.3	43.3	44.4	45.2	45.5	45.3	36.0
	Sk	-40.4	-26.8	-24.2	-20.2	-16.0	-19.7	-16.4	-11.8	-6.7	0.6	5.7	31.9
Almeria N 36.9, W 2.5	Az	121.4	131.7	135.3	140.9	146.5	150.9	155.2	161.3	168.0	177.5	184.2	220.9
	El	27.0	34.4	36.5	39.2	41.5	43.0	44.2	45.5	46.5	47.2	47.1	38.4
	Sk	-43.0	-29.7	-27.2	-23.3	-19.2	-22.9	-19.6	-14.9	-9.6	-2.0	3.3	31.6
Barcelona N 41.4, E 2.2	Az	128.4	139.7	143.6	149.5	155.2	159.6	163.9	169.8	176.1	184.8	190.8	223.6
	El	27.5	33.6	35.3	37.4	39.1	40.1	40.9	41.7	42.1	42.1	41.6	32.0
	Sk	-36.0	-22.0	-19.4	-15.4	-11.4	-15.1	-12.0	-7.7	-3.0	3.6	8.1	31.2
Bilbao N 43.3, W 2.9	Az	124.5	135.1	138.7	144.1	149.4	153.5	157.4	162.9	168.9	177.2	183.1	216.7
	El	23.0	29.3	31.1	33.4	35.3	36.5	37.5	38.6	39.5	40.0	40.0	33.1
	Sk	-36.8	-23.9	-21.7	-18.3	-14.8	-19.0	-16.2	-12.3	-8.1	-2.0	2.2	25.8
Cartagena N 37.6, W 1.0	Az	123.2	133.8	137.5	143.2	148.9	153.4	157.8	163.9	170.6	180.0	186.5	222.3
	El	27.7	34.8	36.8	39.4	41.5	42.9	44.0	45.2	46.0	46.4	46.2	36.9
	Sk	-41.5	-27.9	-25.4	-21.3	-17.2	-20.8	-17.4	-12.7	-7.5	0.0	5.2	32.2
Cordoba N 37.8, W 4.8	Az	119.9	129.8	133.3	138.7	144.0	148.2	152.4	158.2	164.6	173.8	180.3	217.5
	El	24.9	32.2	34.3	37.2	39.5	41.1	42.4	43.9	45.0	46.0	46.2	38.9
	Sk	-43.2	-30.4	-28.1	-24.4	-20.7	-24.6	-21.5	-17.1	-12.1	-4.9	0.3	28.8
Gijon N 43.5, W 5.7	Az	122.1	132.2	135.7	140.9	146.0	150.0	153.8	159.1	164.9	173.2	179.0	213.3
	El	21.1	27.6	29.5	31.9	33.9	35.3	36.4	37.7	38.7	39.6	39.8	34.2
	Sk	-37.9	-25.5	-23.4	-20.2	-16.9	-21.3	-18.7	-15.0	-10.9	-4.9	-0.7	23.4
Granada N 37.2, W 3.6	Az	120.6	130.7	134.3	139.8	145.2	149.5	153.8	159.7	166.3	175.7	182.3	219.4
	El	26.1	33.4	35.5	38.4	40.7	42.2	43.5	44.9	46.0	46.8	46.8	38.7
	Sk	-43.3	-30.2	-27.8	-24.0	-20.1	-23.8	-20.6	-16.0	-10.9	-3.4	1.8	30.4
Hospitalet de Llobregat N 41.4, E 2.1	Az	128.3	139.6	143.5	149.4	155.1	159.5	163.8	169.6	175.9	184.7	190.7	223.5
	El	27.4	33.6	35.3	37.4	39.1	40.1	40.9	41.6	42.1	42.1	41.6	32.1
	Sk	-36.0	-22.1	-19.5	-15.5	-11.4	-15.2	-12.1	-7.8	-3.1	3.5	8.0	31.1
Ibiza N 38.9, E 1.4	Az	126.2	137.3	141.2	147.1	152.9	157.5	161.9	168.0	174.6	183.8	190.1	224.2
	El	28.6	35.2	37.1	39.4	41.3	42.5	43.4	44.3	44.8	44.9	44.5	34.5
	Sk	-38.9	-24.9	-22.2	-18.0	-13.8	-17.4	-14.0	-9.3	-4.2	3.0	7.9	32.9
Las Palmas N 28.1, W 15.4	Az	106.8	113.8	116.3	120.3	124.3	127.7	131.1	136.1	142.0	151.4	158.7	208.9
	El	20.2	29.5	32.4	36.4	39.9	42.4	44.7	47.6	50.3	53.5	55.2	53.4
	Sk	-57.6	-46.8	-45.3	-42.6	-39.8	-44.3	-41.7	-37.7	-32.9	-25.0	-18.7	25.3
Madrid N 40.4, W 3.7	Az	123.3	132.6	136.2	141.6	146.9	151.1	155.2	160.8	167.0	175.8	182.0	217.3
	El	24.2	31.0	33.0	35.6	37.7	39.1	40.2	41.5	42.5	43.2	43.3	36.0
	Sk	-40.1	-27.1	-24.8	-21.2	-17.6	-21.6	-18.7	-14.5	-9.9	-3.2	1.5	27.5
Malaga N 36.7, W 4.4	Az	119.6	129.5	133.1	138.5	143.8	148.1	152.3	158.3	164.8	174.3	181.0	218.7
	El	25.7	33.2	35.4	38.3	40.7	42.3	43.6	45.1	46.3	47.3	47.4	39.6
	Sk	-44.2	-31.2	-28.9	-25.1	-21.2	-25.1	-21.9	-17.3	-12.1	-4.6	0.8	30.1
Palma de Mallorca N 39.6, E 2.7	Az	127.9	139.2	143.2	149.2	155.1	159.7	164.1	170.2	176.7	185.8	192.0	225.2
	El	29.0	35.4	37.1	39.4	41.1	42.1	42.9	43.7	44.1	44.0	43.5	33.1
	Sk	-37.4	-23.2	-20.5	-16.2	-12.0	-15.5	-12.2	-7.6	-2.5	4.5	9.2	33.2
Salamanca N 41.0, W 5.7	Az	120.8	130.8	134.3	139.6	144.7	148.8	152.7	158.2	164.2	172.9	178.9	214.5
	El	22.5	29.4	31.4	34.0	36.2	37.7	38.9	40.3	41.4	42.4	42.6	36.5
	Sk	-40.4	-27.8	-25.7	-22.3	-18.8	-23.0	-20.3	-16.3	-11.8	-5.4	-0.8	25.3
Santa Cruz de la Palma N 28.7, W 17.8	Az	105.6	112.4	114.9	118.7	122.5	125.7	128.9	133.6	139.1	147.8	154.7	204.2
	El	17.9	27.2	30.0	34.0	37.6	40.2	42.5	45.4	48.3	51.7	53.7	53.9
	Sk	-57.7	-47.2	-45.7	-43.3	-40.7	-45.5	-43.1	-39.5	-35.1	-27.8	-22.0	21.1
Santa Cruz de Tenerife N 28.5, W 16.3	Az	106.4	113.4	115.9	119.8	123.8	127.1	130.4	135.3	141.0	150.2	157.3	207.1
	El	19.3	28.5	31.4	35.4	38.9	41.5	43.8	46.7	49.4	52.7	54.5	53.5
	Sk	-57.5	-46.8	-45.2	-42.7	-39.9	-44.5	-42.0	-38.2	-33.6	-25.9	-19.8	23.6
Santander N 43.5, W 3.9	Az	123.7	134.1	137.7	143.0	148.2	152.3	156.2	161.6	167.5	175.8	181.6	215.4
	El	22.3	28.6	30.4	32.8	34.7	36.0	37.0	38.2	39.1	39.7	39.8	33.4
	Sk	-37.1	-24.4	-22.3	-18.9	-15.5	-19.7	-17.0	-13.2	-9.1	-3.1	1.2	24.9
Sevilla N 37.4, W 6.0	Az	118.7	128.4	131.8	137.0	142.2	146.4	150.5	156.2	162.6	171.8	178.4	216.2
	El	24.2	31.7	33.9	36.8	39.2	40.9	42.3	43.9	45.2	46.3	46.6	39.9
	Sk	-44.2	-31.5	-29.3	-25.8	-22.1	-26.1	-23.1	-18.7	-13.8	-6.5	-1.3	28.0
Valencia N 39.3, W 0.7	Az	124.5	135.2	138.9	144.6	150.3	154.7	159.0	164.9	171.4	180.5	186.8	221.5
	El	26.9	33.7	35.6	38.1	40.0	41.3	42.3	43.4	44.2	44.5	44.3	35.4
	Sk	-39.6	-26.1	-23.6	-19.6	-15.6	-19.4	-16.1	-11.6	-6.7	0.4	5.2	30.9
Valladolid N 41.6, W 4.7	Az	122.0	132.2	135.7	141.1	146.3	150.4	154.3	159.8	165.9	174.4	180.5	215.5
	El	22.8	29.6	31.5	34.0	36.1	37.5	38.7	39.9	41.0	41.8	41.9	35.5
	Sk	-39.3	-26.6	-24.5	-21.0	-17.5	-21.7	-18.9	-14.9	-10.5	-4.2	0.3	25.7
Vigo N 42.2, W 8.7	Az	118.8	128.5	131.8	136.9	141.8	145.6	149.4	154.6	160.3	168.6	174.5	210.1
	El	19.8	26.7	28.7	31.4	33.7	35.2	36.5	38.1	39.4	40.6	41.1	36.7
	Sk	-40.5	-28.4	-26.5	-23.4	-20.3	-24.7	-22.2	-18.5	-14.4	-8.4	-4.1	21.8
Zaragoza N 41.6, W 1.0	Az	125.5	136.2	139.9	145.5	151.0	155.3	159.4	165.1	171.3	180.0	186.0	219.9
	El	25.3	31.7	33.5	35.8	37.7	38.9	39.9	40.9	41.6	41.9	41.8	33.6
	Sk	-37.5	-24.2	-21.8	-18.0	-14.3	-18.2	-15.2	-11.1	-6.5	0.0	4.5	28.6

# Sweden

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

		ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Hotbird 13	Eutelsat 10	Eutelsat 9	Eutelsat 7	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W
		31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	10.0° East	9.0° East	7.0° East	4.8° East	0.8° West	5.0° West
Arvidsjaur N 65.6, E 19.1	Az	166.4	170.0	175.2	179.9	183.4	186.7	190.0	191.1	193.3	195.6	201.9	206.2
	El	15.4	15.7	16.0	16.0	16.0	15.9	15.7	15.6	15.4	15.2	14.4	13.7
	Sk	1.4	2.9	5.0	7.0	1.4	2.8	4.1	4.6	5.4	6.4	8.9	10.5
Borås N 57.7, E 12.9	Az	158.3	162.1	167.5	172.6	176.3	179.9	183.4	184.6	187.0	189.6	196.3	200.9
	El	22.4	23.0	23.7	24.2	24.3	24.4	24.3	24.3	24.2	24.0	23.3	22.5
	Sk	-4.4	-2.5	0.4	3.0	-2.0	-0.1	1.8	2.5	3.7	5.1	8.6	11.0
Borlänge N 60.5, E 15.4	Az	161.7	165.4	170.7	175.6	179.3	182.8	186.2	187.3	189.6	192.1	198.7	203.1
	El	20.1	20.6	21.1	21.3	21.4	21.4	21.3	21.2	21.0	20.8	20.0	19.3
	Sk	-1.9	-0.1	2.4	4.9	-0.3	1.4	3.1	3.6	4.7	5.9	9.1	11.2
Falkenberg N 56.9, E 12.5	Az	157.7	161.5	166.9	172.0	175.8	179.4	183.0	184.2	186.6	189.2	196.0	200.6
	El	23.1	23.8	24.5	25.0	25.2	25.2	25.2	25.2	25.1	24.9	24.1	23.4
	Sk	-5.0	-3.0	-0.1	2.7	-2.3	-0.3	1.6	2.3	3.6	5.0	8.7	11.1
Gävle N 60.7, E 17.1	Az	163.6	167.3	172.7	177.6	181.3	184.7	188.1	189.3	191.5	194.0	200.6	205.0
	El	20.1	20.6	21.0	21.2	21.2	21.1	20.9	20.9	20.7	20.4	19.5	18.7
	Sk	-0.9	0.8	3.4	5.8	0.6	2.3	4.0	4.5	5.6	6.8	9.9	11.9
Göteborg N 57.8, E 12.0	Az	157.3	161.1	166.5	171.5	175.3	178.8	182.4	183.5	185.9	188.5	195.3	199.9
	El	22.1	22.8	23.5	24.0	24.2	24.3	24.3	24.2	24.1	24.0	23.3	22.6
	Sk	-4.9	-3.0	-0.2	2.5	-2.5	-0.6	1.3	1.9	3.1	4.5	8.1	10.4
Helsingborg N 56.1, E 12.8	Az	157.8	161.6	167.2	172.3	176.2	179.8	183.4	184.6	187.0	189.6	196.5	201.2
	El	23.9	24.6	25.4	25.8	26.0	26.1	26.0	26.0	25.9	25.7	24.9	24.1
	Sk	-5.2	-3.1	-0.1	2.7	-2.2	-0.1	1.9	2.6	3.9	5.3	9.1	11.6
Jönköping N 57.8, E 14.2	Az	159.8	163.6	169.1	174.1	177.9	181.4	185.0	186.1	188.5	191.1	197.8	202.4
	El	22.6	23.1	23.8	24.1	24.3	24.3	24.2	24.1	24.0	23.8	22.9	22.2
	Sk	-3.6	-1.7	1.2	3.9	-1.1	0.8	2.6	3.3	4.5	5.9	9.4	11.7
Kalmar N 56.7, E 16.3	Az	162.0	165.9	171.4	176.5	180.4	184.0	187.5	188.7	191.1	193.7	200.2	205.0
	El	24.1	24.6	25.1	25.4	25.5	25.4	25.2	25.1	24.9	24.7	23.7	22.8
	Sk	-2.3	-0.2	2.8	5.6	0.2	2.2	4.1	4.8	6.1	15.0	10.9	13.4
Karlstad N 59.4, E 13.5	Az	159.3	163.1	168.4	173.4	177.1	180.6	184.1	185.2	187.5	190.1	196.7	201.2
	El	20.8	21.4	22.0	22.4	22.5	22.6	22.5	22.5	22.3	22.2	21.4	20.7
	Sk	-3.4	-1.5	1.1	3.6	-1.5	0.3	2.1	2.7	3.8	5.1	8.4	10.6
Kristianstad N 56.0, E 14.2	Az	159.4	163.3	168.8	174.0	177.8	181.5	185.1	186.3	188.7	191.3	198.2	202.8
	El	24.4	25.0	25.7	26.0	26.2	26.2	26.1	26.0	25.9	25.6	24.8	23.9
	Sk	-4.3	-2.3	0.8	3.6	-1.2	0.8	2.8	3.5	4.8	6.3	10.0	12.5
Lidköping N 58.5, E 13.2	Az	158.8	162.6	168.0	173.0	176.7	180.2	183.8	184.9	187.3	189.8	196.5	201.1
	El	21.7	22.3	22.9	23.3	23.5	23.5	23.5	23.4	23.3	23.1	22.4	21.7
	Sk	-3.9	-2.0	0.8	3.3	-1.7	0.1	2.0	2.6	3.8	5.1	8.6	10.8
Linköping N 58.4, E 15.6	Az	161.5	165.3	170.8	175.8	179.5	183.1	186.6	187.7	190.1	192.6	199.3	203.8
	El	22.2	22.7	23.3	23.6	23.6	23.6	23.5	23.4	23.2	23.0	22.1	21.3
	Sk	-2.6	-0.6	2.2	4.8	-0.3	1.6	3.4	4.0	5.3	6.6	10.0	12.2
Malmö N 55.6, E 13.0	Az	157.9	161.8	167.3	172.5	176.4	180.0	183.6	184.8	187.3	189.9	196.8	201.5
	El	24.5	25.2	25.9	26.4	26.6	26.6	26.6	26.5	26.4	26.2	25.4	24.6
	Sk	-5.3	-3.2	-0.1	2.8	-2.1	0.0	2.1	2.7	4.1	5.6	9.4	12.0
Norrköping N 58.6, E 16.2	Az	162.2	166.0	171.5	176.5	180.2	183.8	187.3	188.4	190.7	193.3	199.9	204.4
	El	22.1	22.6	23.1	23.4	23.4	23.4	23.2	23.1	22.9	22.7	21.8	20.9
	Sk	-2.2	-0.2	2.6	5.2	0.1	2.0	3.8	4.4	5.6	6.9	10.2	12.5
Stockholm N 59.3, E 18.1	Az	164.5	168.3	173.7	178.7	182.4	185.9	189.4	190.6	192.9	195.4	201.9	206.4
	El	21.7	22.1	22.5	22.7	22.7	22.5	22.3	22.2	22.0	21.7	20.7	19.8
	Sk	-0.8	1.1	3.8	6.4	1.3	3.0	4.8	5.4	6.5	7.8	11.0	13.1
Sundsvall N 62.4, E 17.2	Az	164.0	167.6	172.9	177.7	181.4	184.7	188.1	189.2	191.5	193.9	200.4	204.7
	El	18.4	18.8	19.2	19.4	19.4	19.3	19.2	19.1	18.9	18.7	17.8	17.1
	Sk	-0.4	1.3	3.7	6.0	0.6	2.2	3.8	4.3	5.3	6.4	9.3	11.2
Umeå N 63.8, E 21.2	Az	168.6	172.2	177.4	182.2	185.8	189.1	192.4	193.6	195.8	198.2	204.5	208.7
	El	17.5	17.7	17.9	17.9	17.8	17.6	17.4	17.3	17.0	16.7	15.8	14.9
	Sk	2.0	3.6	5.9	8.0	2.6	4.0	5.5	5.9	6.9	7.9	10.5	12.3
Uppsala N 59.9, E 17.6	Az	164.0	167.8	173.2	178.2	181.9	185.3	188.8	189.9	192.2	194.7	201.3	205.7
	El	21.0	21.4	21.9	22.0	22.0	21.9	21.7	21.6	21.4	21.2	20.2	19.4
	Sk	-0.9	0.9	3.6	6.1	0.9	2.7	4.4	5.0	6.1	7.3	10.5	12.6
Visby (Gotland) N 57.6, E 18.3	Az	164.5	168.3	173.9	178.9	182.7	186.3	189.8	191.0	193.3	195.9	202.5	207.0
	El	23.5	23.9	24.3	24.5	24.5	24.3	24.1	24.0	23.7	23.4	22.3	21.4
	Sk	-1.3	0.8	3.7	6.4	1.5	3.4	5.2	5.9	7.1	8.4	11.9	14.1
Västervik N 57.7, E 16.6	Az	162.5	166.4	171.9	176.9	180.7	184.3	187.8	189.0	191.3	193.9	200.6	205.1
	El	23.1	23.6	24.1	24.3	24.4	24.3	24.1	24.0	23.8	23.6	22.6	21.7
	Sk	-2.2	-0.2	2.7	5.4	0.4	2.3	4.2	4.8	6.0	7.4	10.8	13.1
Växjö N 56.9, E 14.6	Az	160.1	163.9	169.4	174.5	178.3	181.9	185.5	186.7	189.1	191.7	198.4	203.0
	El	23.5	24.1	24.8	25.1	25.2	25.2	25.1	25.0	24.9	24.7	23.8	23.0
	Sk	-3.7	-1.7	1.2	4.0	-0.9	1.0	3.0	3.6	4.9	6.3	9.9	12.3
Örebro N 59.3, E 15.1	Az	161.1	164.9	170.3	175.2	179.0	182.4	185.9	187.1	189.4	191.9	198.6	203.1
	El	21.2	21.7	22.3	22.6	22.7	22.7	22.5	22.5	22.3	22.1	21.3	20.5
	Sk	-2.5	-0.7	2.0	4.6	-0.5	1.3	3.0	3.6	4.8	6.1	9.4	11.5
Östersund N 63.6, E 14.7	Az	161.4	165.0	170.2	175.0	178.6	181.9	185.2	186.4	188.6	191.0	197.4	201.8
	El	16.9	17.3	17.8	18.0	18.1	18.1	18.0	18.0	17.9	17.7	17.0	16.4
	Sk	-1.2	0.4	2.7	4.8	-0.7	0.8	2.3	2.8	3.8	4.9	7.7	9.5

# Switzerland

E=East Longitude W=West Longitude N= North Latitude S= South Latitude Az=Azimuth El=Elevation Sk=Skew

	Türksat	ASTRA 5	ASTRA 2	ASTRA 3	ASTRA 1	Eutelsat 16	Eutelsat Holbird 13	Eutelsat 9	SES 5 / ASTRA 4	Thor / Intelsat 10 02	Eutelsat 5W	Hispasat	
	42.0° East	31.5° East	28.2° East	23.5° East	19.2° East	16.0° East	13.0° East	9.0° East	4.8° East	0.8° West	5.0° West	30.0° West	
Basel N 47.6, E 7.6	Az	137.2	149.0	153.0	158.9	164.5	168.7	172.7	178.1	183.8	191.6	196.8	226.2
	El	26.0	30.6	31.8	33.2	34.2	34.7	35.1	35.29	35.2	34.7	33.9	24.4
	Sk	-27.3	-13.3	-10.8	-7.0	-3.4	-7.6	-4.9	-1.28	2.6	7.8	11.3	29.1
Bern N 47.0, E 7.4	Az	136.7	148.6	152.6	158.5	164.1	168.3	172.4	177.81	183.6	191.4	196.7	226.3
	El	26.4	31.1	32.3	33.7	34.7	35.3	35.7	35.94	35.9	35.3	34.6	24.9
	Sk	-27.9	-13.9	-11.3	-7.5	-3.8	-7.9	-5.2	-1.49	2.4	7.8	11.3	29.5
Biel N 46.5, E 8.2	Az	137.3	149.3	153.4	159.3	165.0	169.3	173.4	178.9	184.7	192.6	197.9	227.3
	El	27.2	31.8	33.0	34.4	35.4	36.0	36.3	36.51	36.4	35.8	35.0	24.9
	Sk	-27.8	-13.6	-11.0	-7.1	-3.3	-7.3	-4.5	-0.76	3.2	8.6	12.2	30.4
Genf N 46.2, E 6.2	Az	135.0	146.8	150.8	156.7	162.3	166.5	170.6	176.12	181.9	189.9	195.3	225.4
	El	26.4	31.3	32.6	34.2	35.3	36.0	36.4	36.78	36.8	36.4	35.7	26.2
	Sk	-29.3	-15.3	-12.8	-8.9	-5.2	-9.3	-6.5	-2.68	1.3	6.9	10.6	29.5
Köniz N 46.9, E 7.4	Az	136.6	148.5	152.5	158.4	164.0	168.3	172.4	177.81	183.6	191.4	196.8	226.3
	El	26.4	31.2	32.4	33.8	34.9	35.4	35.8	36.05	36.0	35.5	34.7	25.0
	Sk	-28.0	-13.9	-11.4	-7.6	-3.8	-8.0	-5.2	-1.5	2.4	7.8	11.4	29.6
Lausanne N 46.5, E 6.7	Az	135.7	147.5	151.5	157.4	163.0	167.3	171.4	176.83	182.6	190.6	195.9	225.8
	El	26.4	31.2	32.5	34.0	35.1	35.7	36.2	36.47	36.5	36.0	35.3	25.7
	Sk	-28.7	-14.7	-12.2	-8.3	-4.6	-8.7	-6.0	-2.18	1.8	7.3	10.9	29.6
Locarno N 46.2, E 8.8	Az	137.8	149.9	154.0	160.0	165.7	170.1	174.2	179.72	185.5	193.5	198.8	228.1
	El	27.7	32.3	33.5	34.9	35.9	36.4	36.7	36.85	36.7	36.0	35.1	24.8
	Sk	-27.7	-13.3	-10.7	-6.7	-2.8	-6.9	-4.0	-0.19	3.8	9.3	12.9	31.0
Luzern N 47.0, E 7.9	Az	137.2	149.2	153.2	159.1	164.7	169.0	173.0	178.5	184.2	191.8	197.4	226.8
	El	26.6	31.3	32.4	33.8	34.8	35.4	35.7	36.0	35.9	35.3	34.5	24.7
	Sk	-27.6	-13.0	-10.4	-6.6	-2.9	-7.5	-4.7	-1.0	10.4	8.0	11.8	29.8
Sankt Gallen N 47.4, E 9.4	Az	139.0	151.1	155.2	161.2	166.8	171.1	175.1	180.54	186.2	194.0	199.2	228.1
	El	27.0	31.4	32.5	33.8	34.7	35.2	35.4	35.53	35.3	34.6	33.7	23.6
	Sk	-26.4	-12.1	-9.5	-5.6	-1.9	-6.0	-3.3	0.37	4.2	9.4	12.9	30.3
Thun N 46.8, E 7.6	Az	136.8	148.7	152.7	158.7	164.3	168.6	172.6	178.08	183.8	191.7	197.1	226.6
	El	26.6	31.3	32.5	34.0	35.0	35.6	35.9	36.17	36.1	35.5	34.8	25.0
	Sk	-28.0	-13.8	-11.3	-7.4	-3.7	-7.8	-5.1	-1.31	2.6	8.0	11.6	29.8
Winterthur N 47.5, E 8.8	Az	138.4	150.4	154.5	160.4	166.0	170.3	174.3	179.73	185.4	193.2	198.4	227.5
	El	26.7	31.1	32.2	33.6	34.5	35.0	35.3	35.42	35.3	34.6	33.8	23.8
	Sk	-26.7	-12.5	-9.9	-6.1	-2.4	-6.6	-3.8	-0.18	3.7	8.9	12.3	29.9
Zürich N 47.4, E 8.6	Az	138.2	150.2	154.2	160.1	165.7	170.0	174.0	179.46	185.2	192.9	198.2	227.3
	El	26.6	31.1	32.3	33.6	34.6	35.1	35.4	35.53	35.4	34.7	33.9	24.0
	Sk	-26.9	-12.7	-10.1	-6.3	-2.6	-6.8	-4.0	-0.37	3.5	8.7	12.2	29.8