Satgear Guide to getting great Satellite TV reception

This guide is designed to help you to make the most of your Satgear equipment purchase. As long as you have a direct line of sight to the satellite (no obstacles in the way), you can get great Satellite TV reception in the UK with any Satgear product.

Satellite Basics

First, some basics. For mainstream use in the UK (and most of Europe) there are four ways of receiving TV via satellite:

- Sky subscription
- Freesat From Sky
- Freesat
- Free to Air (FTA)

Sky will be familiar to most of us. To receive it you need a dish, a Sky receiver and a valid Sky subscription. BSkyB Ltd is the company behind Sky. They produce their own programs but mainly they have an agreement to carry other companies' programs. All of these programs are transmitted via the Astra 2 satellites. Some channels are encrypted, so they must have a valid Sky card in the Sky receiver, otherwise they will not be viewable. Other channels are not encrypted, so you can view them using one of the other three alternatives. Sky also has its own 7-day Electronic Program Guide (EPG) which is important to help schedule your viewing and recording habits. They add information to make their EPG more useful and therefore valuable. So in a nutshell Sky pulls together 600+ encrypted (paid-for) and free channels and wraps them up in a package with a detailed EPG.

Freesat From Sky uses the exact same equipment and satellite setup as Sky, but it restricts the channels to the 200+ unencrypted free channels only. For this Sky charges a one-off fee with no ongoing subscription charges. They provide you with an appropriate viewing card to put in a Sky receiver.

Freesat is a joint venture between the BBC and ITV. They take 80+ free unencrypted channels from the Astra 2 satellites and provide a custom 7-day EPG to bring it all together into an attractive package. You have to buy a specific Freesat receiver which runs the software for their EPG. It uses the same dish setup as Sky and has no subscription fees.

Free to Air is not provided by any specific company. It refers to the many hundreds of free, unencrypted channels that are beamed to us from the Astra 2 satellites (and others if you want to move the dish and find them). As it uses the same satellites as Sky, you can use the same dish setup, but you need a different receiver. FTA receivers are typically lower cost as there are no licensing issues. They use the basic free Over-The-Air (OTA) EPG to show program details.

This guide is concerned with setting up your dish to access the programming on the Astra 2 satellites. This will work with other satellites just as well; you just need to obtain the correct settings and make sure your dish is big enough for the satellites you want to use. One advantage of FTA is that you have dozens of satellites to choose from and therefore thousands of channels.

By “Astra 2 satellites” we mean the Astra 2A, 2B, 2C and 2D satellites. There is another satellite called Eurobird 1 which is very close to the Astra 2 satellites. All five of these satellites are close enough together to be picked up as a single “beam”. The Astra 2D satellite is more focussed on the UK with a narrow “beam”.

The steps you need to take are as follows:

1. Obtain the correct equipment
2. Find out the positioning settings for your dish
3. Assemble and connect your receiver and dish
4. Ensure a clear line of sight to the satellite
5. Position the dish to obtain the strongest signal from your chosen satellite
6. Configure your receiver to show the channels you want

Equipment

Satgear supply individual components and complete kits for static and portable satellite viewing. This is a general overview of equipment requirements.

You need:

- Satellite dish and LNB
- Mounting system
- Receiver

Satellite dish

Signal from the Astra 2 satellites is strong throughout the UK, although it does become progressively weaker as you go North. Signal coverage varies depending on which satellite and transponder is used to transmit the channels you need.

The Sky-provided minidish is 53cm wide and works for most of England and Wales, even France. As you get into Scotland however you are advised to go with a bigger dish. If your dish isn’t big enough you will find that signal quality gets much worse in bad weather and may not be usable at all.

We generally provide 60cm and 65cm dishes that will be ideal for all UK and many European locations. We also have a smaller 35cm suitcase dish for camping and caravanning which will be fine in many parts of the UK. Our 80cm dishes are great for fringe areas.

It is very difficult to predict the dish size required in fringe areas without some trial and error. This link: http://www.lyngsat.com/28east.html lists each channel and the “beam” used. Click on the Beam link and it will show you a map of the coverage and recommended dish sizes.

LNB

You will need an LNB (Low Noise Blocker) to receive and channel the signal from the dish to the receiver. The LNB is mounted on a bracket or swivel arm and is connected to the receiver using F-connectors and satellite coax cable. Satgear supply Universal LNBs with a noise figure of .2 dB or .3 dB which are high quality HD compatible. Satgear supplies Single, Dual and Quad LNBs which have 1, 2 and 4 outputs respectively. These can be used with multi-receiver setups.

Mounting system

It is important that your satellite dish is mounted securely to avoid movement away from the satellite beam. If you have a static location then you will typically use a mounting bracket attached to a wall, chimney or pole. Mobile locations (caravans or camping) will usually use a tripod or our jockey wheel mounts. All Satgear dish kits come with fixings to enable mounting on a pole or a tripod. In addition some kits come with wall fixing mounts or jockey wheel kits.

If tripod mounting is your preference, make sure the tripod is sturdy enough to withstand windy days. Most Satgear tripods come with ground stakes to improve stability if required.

For caravans the new Satgear Caramast and jockey wheel mounts are a great way to quickly and securely fix your dish without taking up valuable space.

Receiver

You need to buy the correct receiver for Sky, Freesat or Free to Air.

If you choose Sky then you will have a subscription and a receiver already. Be aware that Sky require you to inform them if you are taking your receiver to a different location, in which case they will update your viewing card over the air to work away from home.

Freesat receivers are available from Currys, Comet, Argos and others.

Free to Air receivers are typically the most compact and cost effective of the three options. They will provide hundreds of channels and even allow you to point at different satellites if you want additional channels. There are several Satgear receivers available at low cost, some with dual voltage 12v/240v power, ideal for mobile applications.

Dish positioning

Settings

Now that you have your equipment ready you need to find out the correct dish alignment settings. The dish needs to be turned to the correct compass setting and angled to the correct elevation. You will then need to fine tune the alignment to get the best signal possible.

Alignment settings vary according to your position. The Astra 2 satellites are positioned at 28.2 degrees East, but the actual bearing depends on your own latitude and longitude relative to the satellite.

The settings you need are:

- Azimuth (compass bearing)
- Elevation (how far up to point)
- Skew (LNB rotation)

You can get these figures by entering your location into a calculator like http://www.dishpointer.com/ or by referring to the table below:

See alignment settings table

Alignment

Firstly, make sure the dish is mounted securely, but able to be moved into the correct position without too much effort. Set the satfinder to a low sensitivity level using the sensitivity dial, then connect up the satfinder with one connection going to the LNB and the other going to the receiver (the connections are labelled). Switch on the receiver and put it into signal test mode – this will be a menu option from the settings screen usually.

You then need to use the azimuth setting to approximately locate the satellite. For example, in London the azimuth setting is 145.5 degrees. You should adjust for magnetic variation for the actual compass bearing. In this case it is 147.6 degrees according to Dishpointer. Point the dish at the adjusted bearing to begin with. In the UK, this will be somewhere between 142 degrees in Northern Ireland to 150 degrees in Norfolk. There are satellites approximately every 3 degrees, so it is easy to get the wrong one. We will use the receiver and satfinder to get that right.

The elevation is next setting to use. Most dishes are offset, so the LNB doesn't point directly at the satellite, it points below it. Usually in the UK the dish will be roughly vertical to the ground. Most of the Satgear satellite dishes have elevation markings on them to aid you. In the UK the elevation should be between 18 degrees in the north of Scotland to 26 degrees on the south coast of England. Elevation is measured in degrees up from the horizontal.

Now make sure you have a clear line of site between the dish and the satellite. It is essential that there are no buildings, trees or other obstacles in the way.

It's now time to fine tune the alignment.

The satfinder should be showing a signal. If you have no signal, turn the dial up to high and move the dish very slowly until you get a rise in the tone and/or the needle moves up. If the signal is too high you may need to reduce the sensitivity by turning down the sensitivity dial – if you don't do this you won't be able to tell when you have maximum signal. If you still have no signal you should rotate the dish very slowly left and right until you get a signal, then rotate the dish until the signal is at its maximum. Check your receiver signal test screen now. It should show a signal lock and the Network ID should be "0002" for Sky or "003b" for Freesat. The transport stream should show ""07d4" or "0802" respectively. For Free to Air receivers you need to set the satellite to "Astra 2A-2B-2D" usually, then check the signal. If you see a different network, or no Astra 2 signal, you have pointed the dish at a different satellite, so you need to rotate until you find the Astra 2 satellites. If the screen shows the correct setting then you now have the correct azimuth set, so tighten the dish so it can't rotate any more.

Now you need to set the elevation using the same method, moving the dish up and down until the signal is maximised. Then tighten up the dish mounts without disturbing the dish.

Finally, you will need to rotate the LNB clockwise by the number of degrees of "skew" or "polar" in the settings to further fine tune the signal. This will be somewhere between 10 and 17 degrees in the UK. Use the satfinder to make sure the signal is at its maximum. If you are having problems with getting signal in the first place you may want to experiment with the LNB rotation at the same time as positioning the dish itself.

When you are happy that you have a good signal remove the satfinder and re-connect the receiver.

Satellite Alignment Settings for ASTRA 2A, 2B, 2D and Eurobird 1

Satellite Longitude: 28.2 Offset: 7.5

Mainland UK

Location	County	Latitude	Longitude	Elevation	Azimuth	Polar
Aberdeen	Aberdeenshire	57.13	-2.10	19.76	145.17	-10.55
Abergavenny	Gwent	51.83	-3.02	23.96	142.37	-14.66
Aberystwyth	Dyfed	52.42	-4.07	23.05	141.46	-14.84
Alnwick	Northumberland	55.40	-1.70	21.39	145.06	-11.48
Ampthill	Bedfordshire	52.03	-0.48	24.77	145.24	-13.03
Aviemore		57.20	-3.83	19.12	143.34	-11.37
Ayr	Ayrshire	55.40	-4.69	20.32	141.85	-13.04
Banff		57.66	-2.53	19.16	144.87	-10.43
Barnstaple	Devon	51.08	-4.05	24.16	140.96	-15.81
Basingstoke		51.26	-1.08	25.22	144.29	-13.92
Bath	Avon	51.38	-2.37	24.61	142.91	-14.61
Berwick-Upon-Tweed	Northumberland	55.78	-2.00	20.96	144.86	-11.38
Birmingham	West Midlands	52.48	-1.91	23.84	143.83	-13.57
Blackpool		53.81	-3.05	22.27	143.06	-13.28
Bodmin	Cornwall	50.47	-4.73	24.38	139.98	-16.66
Boston	Lincolnshire	52.98	-0.02	24.10	146.10	-12.12
Bournemouth	Dorset	50.72	-1.88	25.37	143.19	-14.80
Brecon		51.95	-3.38	23.71	142.02	-14.79
Brighton & Hove	East Sussex	50.83	-0.15	25.95	145.16	-13.65
Bristol	Avon	51.46	-2.61	24.44	142.68	-14.70
Bude	Cornwall	50.82	-4.54	24.17	140.33	-16.29
Burnley		53.80	-2.23	22.59	143.95	-12.84
Bury Saint Edmunds	Suffolk	52.25	0.72	25.02	146.66	-12.16
Caernarfon		53.15	-4.26	22.36	141.52	-14.41
Cambridge	Cambridgeshire	52.20	0.12	24.85	145.97	-12.56
Campbeltown	Argyll & Bute	55.43	-5.60	19.96	140.89	-13.47
Cardiff	Mid Glamorgan	51.48	-3.18	24.19	142.06	-15.01
Cardigan		52.08	-4.66	23.08	140.69	-15.41
Carlisle	Cumbria	54.88	-2.93	21.40	143.56	-12.48
Carmarthen		51.85	-4.31	23.42	140.98	-15.39
Chelmsford	Essex	51.76	0.47	25.37	146.21	-12.64
Chester	Cheshire	53.19	-2.89	22.86	143.01	-13.63
Colwyn		53.30	-3.75	22.43	142.12	-14.03
Coventry	West Midlands	52.42	-1.50	24.05	144.26	-13.37
Crainlarich		56.39	-4.61	19.53	142.26	-12.31
Dingwall		57.60	-4.45	18.58	142.81	-11.40
Dolgellau	Gwynedd	52.75	-3.88	22.84	141.78	-14.49
Dover	Kent	51.13	1.30	26.23	146.91	-12.53
Dundee	Angus	56.48	-2.99	20.02	144.02	-11.43
Edinburgh	Midlothian	55.95	-3.22	20.39	143.60	-11.91
Elgin	Grampian	57.65	-3.33	18.91	144.01	-10.83
Exeter	Devon	50.72	-3.51	24.69	141.40	-15.76
Felixstowe		51.96	1.35	25.51	147.27	-11.96
Fishguard	Dyfed	51.99	-4.97	23.02	140.32	-15.65
Folkestone		51.08	1.18	26.24	146.76	-12.64
Fort William	Highland	56.82	-5.12	19.00	141.86	-12.26
Gairloch		57.70	-5.66	18.08	141.56	-11.90
Glasgow	Lanarkshire	55.87	-4.27	20.09	142.45	-12.50
Gloucester	Gloucestershire	51.86	-2.25	24.24	143.22	-14.20
Great Yarmouth	Norfolk	52.63	1.75	25.04	147.96	-11.29
Grimsby		53.53	-0.05	23.61	146.25	-11.78
Guildford	Surrey	51.22	-0.57	25.45	144.84	-13.64
Hastings		50.85	0.60	26.22	146.01	-13.17
Hereford	Hereford and Worcester	52.06	-2.71	23.89	142.79	-14.33
Holyhead	Gwynedd	53.30	-4.63	22.09	141.17	-14.51
Ipswich	Suffolk	52.06	1.15	25.35	147.08	-12.02
Kendal	Cumbria	54.32	-2.75	21.95	143.56	-12.77
Kilmarnock		55.61	-4.49	20.22	142.13	-12.79
King's Lynn		52.75	0.38	24.45	146.46	-12.04
Kingston upon Hull	Humberside	53.75	-0.36	23.30	145.98	-11.82
Kyle of Lochalsh		57.26	-5.71	18.42	141.37	-12.23
Lancaster		54.04	-2.81	22.17	143.40	-12.99
Largs		55.76	-4.85	19.97	141.80	-12.86
Leeds	Yorkshire	53.81	-1.55	22.83	144.69	-12.45
Leicester	Leicestershire	52.64	-1.13	24.00	144.74	-13.00
Lincoln	Lincolnshire	53.23	-0.53	23.70	145.62	-12.26
Liverpool	Merseyside	53.42	-2.99	22.63	142.99	-13.52
London	Greater London	51.52	-0.10	25.37	145.48	-13.15
Ludlow		52.36	-2.73	23.63	142.89	-14.12
Luton	Bedfordshire	51.88	-0.42	24.93	145.26	-13.09
Lyme Regis	Dorset	50.73	-2.93	24.92	142.04	-15.41
Maidstone		51.26	0.51	25.83	146.07	-12.95

Location	County	Latitude	Longitude	Elevation	Azimuth	Polar
Mallaig		57.00	-5.83	18.59	141.16	-12.47
Manchester	Greater Manchester	53.48	-2.22	22.87	143.85	-13.05
Middlebrough	North Yorkshire	54.57	-1.16	22.30	145.38	-11.73
Moffat		55.31	-3.45	20.85	143.14	-12.46
Montrose		56.70	-2.47	20.01	144.64	-11.02
Newark upon Trent	Nottinghamshire	53.07	-0.82	23.74	145.24	-12.53
Newcastle upon Tyne	Tyne and Wear	55.00	-1.61	21.78	145.03	-11.69
Newhaven		50.78	0.03	26.07	145.35	-13.57
Newtown		50.70	-1.40	25.58	143.72	-14.51
Northampton		52.25	-0.83	24.45	144.93	-13.09
Norwich	Norfolk	52.63	1.30	24.89	147.45	-11.56
Nottingham	Nottinghamshire	52.97	-1.18	23.69	144.81	-12.81
Oban		56.41	-5.46	19.21	141.36	-12.71
Oxford	Oxfordshire	51.72	-1.26	24.75	144.27	-13.71
Peebles		55.63	-3.16	20.69	143.56	-12.09
Pembroke		51.69	-4.91	23.30	140.27	-15.84
Penrith		54.65	-2.73	21.68	143.70	-12.53
Perth		56.40	-3.43	19.94	143.52	-11.71
Peterborough	Cambridgeshire	52.56	-0.24	24.40	145.70	-12.54
Peterhead		57.50	-1.78	19.54	145.63	-10.16
Pitlochry		56.71	-3.72	19.57	143.31	-11.65
Plymouth	Devon	50.40	-4.14	24.69	140.59	-16.37
Portree		57.40	-6.20	18.13	140.90	-12.37
Reading	Berkshire	51.43	-1.00	25.10	144.44	-13.76
Scarborough		54.28	-0.40	22.82	146.12	-11.49
Settle		54.06	-2.27	22.35	144.00	-12.68
Sevenoaks	Kent	51.27	0.20	25.70	145.72	-13.13
Sheffield	South Yorkshire	53.39	-1.48	23.22	144.63	-12.70
Shrewsbury		52.72	-2.73	23.32	143.02	-13.87
Southampton	Hampshire	50.90	-1.40	25.40	143.80	-14.37
Stafford		52.80	-2.10	23.49	143.74	-13.45
Stirling		56.11	-3.98	19.99	142.84	-12.18
Stoke on Trent	Staffordshire	53.01	-2.19	23.28	143.71	-13.36
Stranraer		54.90	-5.03	20.61	141.31	-13.56
Stratford-upon-Avon		52.18	-1.70	24.18	143.95	-13.65
Swansea (Abertawe)	Swansea	51.62	-3.95	23.76	141.28	-15.35
Swindon		51.93	-2.10	24.24	143.41	-14.06
Tain		57.80	-4.06	18.54	143.28	-11.08
Thirsk	North Yorkshire	54.22	-1.33	22.55	145.07	-12.06
Thurso	Highland	58.60	-3.50	18.05	144.11	-10.28
Torquay	Devon	50.45	-3.50	24.92	141.31	-15.96
Truro	Cornwall	50.26	-5.04	24.40	139.56	-17.00
Uig		58.20	-7.00	17.20	140.31	-12.17
Ullapool	Highland	57.90	-5.17	18.08	142.14	-11.54
Watford		51.66	-0.40	25.13	145.20	-13.24
Weymouth		50.61	-2.46	25.22	142.51	-15.22
Wick	Highland	58.43	-3.08	18.32	144.51	-10.19
Worcester	Hereford and Worcester	52.19	-2.22	23.97	143.38	-13.95
Workington	Cumbria	54.65	-3.57	21.37	142.79	-12.98
Yeovil	Somerset	50.95	-2.63	24.86	142.45	-15.08
York	North Yorkshire	53.94	-1.08	22.88	145.25	-12.10

Northern Ireland & Eire

Location	County	Latitude	Longitude	Elevation	Azimuth	Polar
Athlone		53.43	-7.95	20.62	137.71	-16.14
Belfast		54.59	-5.91	20.53	140.27	-14.24
Cavan		54.00	-7.37	20.41	138.52	-15.41
Cork		51.90	-8.48	21.57	136.57	-17.60
Dublin		53.39	-6.26	21.36	139.47	-15.30
Galway		53.27	-9.04	20.28	136.52	-16.80
Killarney		52.06	-9.51	20.99	135.57	-17.99
Larne		54.85	-5.81	20.35	140.47	-14.00
Limerick		52.66	-8.62	20.93	136.72	-17.07
Londonderry		54.99	-7.32	19.65	138.93	-14.64
Newry		54.17	-6.32	20.70	139.69	-14.75
Rosslare		52.27	-6.38	22.20	138.93	-16.21
Sligo		54.28	-8.47	19.74	137.48	-15.74
Tralee		52.28	-9.71	20.73	135.45	-17.92
Waterford		52.25	-7.13	21.90	138.12	-16.62
Westport		53.81	-9.53	19.65	136.21	-16.62