

# SureAntennas<sup>®</sup>

Covert Antenna Solutions



**SMARTER COVERT SOLUTIONS  
TAILORED TO YOUR REQUIREMENTS**

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Sure antennas is a trading name of SFL Mobile Radio Limited. Located in the north west of England since 1977.

The company occupies a niche position within the mobile antenna design and build marketplace, having developed thousands of multifunctional RF critical vehicle antenna solutions for specialist radio operators including the police and military around the world.

With over 30 years' experience, Sure Antennas has offered its own OEM antenna modification

service to help disguise that your vehicle is installed with radio communication equipment, without compromising your covert operation.

Using the latest technology and building techniques we have modified hundreds of the latest antennas from every vehicle manufacture. Each antenna is hand made to the highest quality, with focus on achieving the best performing antenna for our customers operating frequency while maintaining the anonymity of your vehicle.

## SURE ANTENNAS SMARTER COVERT SOLUTIONS

Our passion is to provide a true covert vehicle antenna solution for surveillance purposes.

Sure antennas will modify a factory fitted OEM Vehicle antenna to transmit and receive within a desired frequency banding giving users an 80% increase in range when tested alongside traditional bumper and semi-covert on-glass antenna installations.

We understand the demand for multi-function antenna connections, so like to work with you to understand what equipment connections are needed from an antenna in your vehicle.

With this information we can guide you through what is achievable while retaining the OEM antenna cosmetic look. Once satisfied we would replace the OEM internal workings to feature all the connections you require to operate essential radio communications equipment.

### How It Works

Sure Antennas can offer a 'Covert Supply and Modify' or 'Covert Modify Only' service.

'Covert Supply and Modify' allows us to deliver like for like OEM antenna components modified with your added functions. To do this we would need the chassis number off the vehicle. Benefits would be an easier installation, as no extra drilling to a vehicle roof would be needed, and we could offer to retain OEM functions with their original Molex or FAKRA connections to help reconnect to the vehicles original wiring loom.



'Covert Modify Only' is a service that allows you to send us the original OEM antenna components off the vehicle while in build, and we can return them modified with your added functions usually within 7 days. Benefits include an easier installation, as they are original OEM parts from the vehicle. Cheaper cost, as no extra OEM components need to be supplied. We could retain OEM functions with their original Molex or FAKRA connections to help reconnect to the vehicles wiring loom.

If all you require is a universal looking antenna for a semi covert non-marked vehicle we can advise on single nut panel mount alternatives that would suit the look of your vehicle and not take much time to install as a retro fit installation.

Just contact us with your custom requirements at:  
[sales@sure-antennas.com](mailto:sales@sure-antennas.com)



## Example Full Covert Ford Front Roof Van Antenna



Sure Antennas are able to modify the genuine vehicle antenna from any car manufacturer to your specification providing a truly covert solution. The antenna on this page is from a 2017 Ford Transit Connect van that came from a customer's multi-functional requirement.

Sure Antennas solution was to modify the original Ford Vehicle antenna to support Tetra, LTE, and GPS and supplying a multiplexer with all the

low loss coax extension cables to connect all these vital communications equipment.

As the customer supplied us the chassis number of the vehicle we were able to purchase the exact OEM components from Ford, and retain the connections from the wiring loom to the Ford entertainment system.

[Please contact us for more frequency combinations.](#)

Whatever your requirement we can create a bespoke solution for you.

### Available Functions:

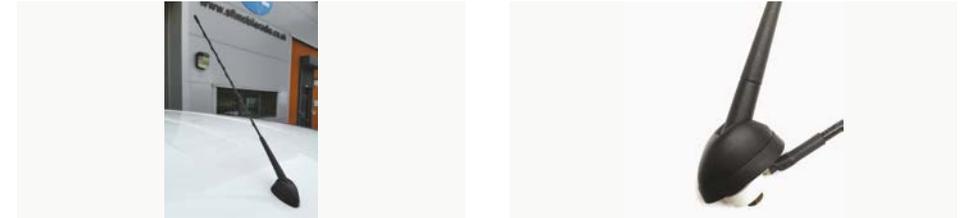
- > GPS: 1575MHz
- > Tetra: 380-430MHz
- > LTE: 890-960, 1750-1890 MHz
- > VHF: Custom frequencies
- > UHF: Custom frequencies
- > Cellular: Custom frequencies
- > WiFi: 2.4GHz
- > Other custom frequencies

Band	Tetra	LTE	ALL OEM FUNCTIONS AND CONNECTIONS RETAINED	GPS
Frequency Band (Mhz)	380-430	700-960 & 1750-2700		1562-1612
VSWR	<2.1:1 Typically 1.5:1	<2.1:1 Typically 1.5:1		<2.1
Gain	2dBi	2dBi		26dB
Maximum Input Power	50w	10w		-
Cable Type / Length mm	RG316 / 300mm		RG316 / 00mm	
Termination	SMA (m)		Blue Fakra (m)	

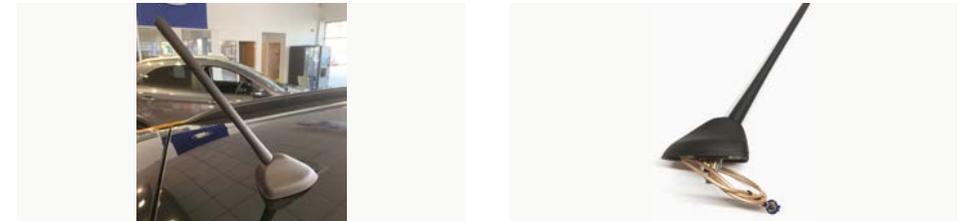
Subject to change without prior notice.

## Examples of OEM Roof Antennas

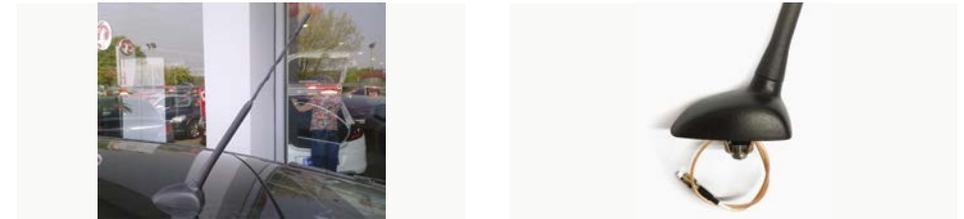
### 2013> Citroen Nemo Front Centre Roof Antenna



### 2018 Ford Fiesta Rear Roof Antenna



### 2016 Opel Insignia Rear Roof Antenna



Shown above are examples of popular antenna modifications carried out by Sure Antennas recently. Please contact us for more vehicle manufacturers and your frequency requirements so we can create a bespoke vehicle antenna system to suit your installation.

### Available Functions for this form factor are:

- > GPS: 1575MHz
- > Tetra: 380-430MHz
- > LTE: 890-960, 1750-1890 MHz
- > VHF: Custom frequencies
- > UHF: Custom frequencies
- > Cellular: Custom frequencies
- > WiFi: 2.4GHz
- > Other custom frequencies

### Example Full Covert BMW Shark Fin Antenna



Sure Antennas BMW sharkfin solution shows our attention to detail, with our commitment at giving you the best quality components by coming away from the traditional helical antennas and using efficient PCB designs.

This particular modification was a 'Covert Modify Only' service where the customer sent us the OEM components off the vehicle. The customer required us to centre the antenna at 390MHz and add another GPS connection while retaining all the OEM FAKRA connections of the vehicle.

As we were sent the OEM components from the customer's vehicle we were able to identify the OEM connections and allow the customer to reconnect the BMW wiring loom. The pictures show we added an extra 390MHz connection labelled 'Tetra' and were able to hand tune the antenna to support the metallic paint finish of the cosmetic sharkfin to give a better VSWR result.

**Please contact us for more frequency combinations.**

Whatever your requirement we can create a bespoke solution for you.

**Available Functions:**

- > GPS: 1575MHz
- > Tetra: 380-430MHz
- > LTE: 890-960, 1750-1890 MHz
- > S Band : Custom frequencies
- > UHF: Custom frequencies
- > Cellular: Custom frequencies
- > WiFi: 2.4GHz
- > Other custom frequencies

Band	Tetra	GPS	ALL OEM FUNCTIONS AND CONNECTIONS RETAINED
Frequency Band (Mhz)	380-400	1562-1612	
VSWR	<2.1:1 Typically 1.5:1	<2.1	
Gain	1.14dBi	26dB	
Maximum Input Power	10w	-	
Cable Type / Length mm	RG316 / 300mm	RG316 / 300mm	
Termination	FME (f)	Blue Fakra (m)	

Subject to change without prior notice.

### Examples of OEM Roof Antennas

2018 Volvo XC60 Sharkfin Antenna



2017 Toyota Rav 4 Sharkfin Antenna



2018 Skoda Octavia Sharkfin Antenna



Shown above are examples of popular antenna modifications carried out by Sure Antennas recently. Please contact us for more vehicle manufacturers and your frequency requirements so we can create a bespoke vehicle antenna system to suit your installation.

**Available Functions for this form factor are:**

- > GPS: 1575MHz
- > Tetra: 380-430MHz
- > LTE: 890-960, 1750-1890 MHz
- > VHF: Custom frequencies
- > UHF: Custom frequencies
- > Cellular: Custom frequencies
- > WiFi: 2.4GHz
- > Other custom frequencies

## Universal Antennas



Sure Antennas pair of bumper antennas is an ideal solution for vehicles where a roof mounted antenna is not an option, maybe due to a covert operation or a motorcycle installation. Each front and rear Dipole antenna is produced to your required frequency and individually tested to insure the best possible performance is achieved. Using ultra low loss cabling in the construction of the kit, and a combiner unit improves reception overall and gives an edge to just

using a single dipole antenna. Unlike other bumper antennas on the market we produce them to your custom frequency and encourage the 5m extension cables to be cut to suit the installation of the vehicle rather than coiling them up, as this would help performance greatly.

[Please contact us for more frequency combinations.](#)

Part No	SA1001002-4	
Electrical Data	Dipole Antenna	SM3400 Combiner
Frequency Range (MHz)	380-400 MHz	
Band	Tetra	
Peak Gain	2dBi	
Isolation	-	> -30dB
Insertion Loss	-	< -0.5dB*
Polarisation	Vertical	-
Pattern	Omni-directional	-
Impedance	50Ω	
Max Power Input (W)	25W	

Subject to change without prior notice.

\*Excluding combining losses.

## Standard VW / Skoda / Opel / Seat / Toyota Panel Mount Rear Roof Antenna



Based on an antenna with a familiar appearance throughout the world. This single hole panel mount rear roof whip style antenna will not look out of place on any vehicle.

Suitable for lower band VHF frequencies this antenna can be supplied with colour coded whips to help support a wider bandwidth.

This antenna can be modified to many frequency combinations including LTE. [Please contact us for more frequency combinations.](#)

Part No	SASA1056001-7
Frequency Range (MHz)	350-500
Band	UHF
VSWR	<2.1:1 TYPICALLY 1.5:1
Gain	2dBi
Max Input Power (w)	50w
Cable Type / Length (mm)	RG316 / 300mm
Termination	SMA (m)

## Ford Low Profile Sharkfin Antenna



This Ford Sharkfin antenna is an ideal universal low profile antenna that could be fitted to many vehicles including vans and cars.

Supplied as standard in a black plastic finish the antenna can be supplied to match colour match the paint finish of your vehicle.

The antenna is supplied as a single nut panel mount antenna and can be supplied with many custom frequency combinations. [Please contact us for more frequency combinations.](#)

Part No	SAFD20020-4
Frequency Range (MHz)	380-400
Band	UHF
VSWR	<2.1:1
Gain	1.14dBi
Max Input Power (w)	10w
Cable Type / Length (mm)	RG316 / 300mm
Termination	FME (f)

## OEM Magnetic Rear Roof Antenna



Based on an antenna with a familiar appearance throughout the world. This magnetic rear roof whip style antenna is extremely versatile, allowing a quick deployment, ideal for when hire cars are used, or testing of vehicle radio equipment.

With strong Neodymium magnets used in the construction of the antenna, it can withstand motorway speeds with ease. LBC100 thin black coax is used to allow the end user to hide the cable under window rubbers etc. [Please contact us for more frequency combinations.](#)

Part No	SASA10420-7
Frequency Range (MHz)	350-500
Band	UHF
VSWR	<2.1:1 TYPICALLY 1.5:1
Gain	2dBi
Max Input Power (w)	50w
Cable Type / Length (mm)	LBC100 / 5000mm
Termination	BNC (m)

## OEM Magnetic Sharkfin Antenna



Based on an Audi sharkfin antenna. This magnetic rear roof sharkfin style antenna is extremely versatile, allowing a quick deployment, ideal for when hire cars are used, or testing of vehicle radio equipment.

With strong Neodymium magnets used in the construction of the antenna, it can withstand motorway speeds with ease. LBC100 thin black coax is used to allow the end user to hide the cable under window rubbers etc. [Please contact us for more frequency combinations.](#)

Part No	SASA10620-4
Frequency Range (MHz)	380-400
Band	UHF
VSWR	<2.1:1
Gain	1.14dBi
Max Input Power (w)	10w
Cable Type / Length (mm)	LBC100 / 5000mm
Termination	BNC (m)

## SM2000 3 Port Diplexer Unit



The SM2000 range of Diplexers are designed to provide an improvement of VSWR between a multiple transmitters and one aerial. In order to maintain this enhanced performance it is necessary to minimize insertion losses through the system. The SM2000 is designed with a very low insertion loss factor of less than -0.3 dB at VHF, and Port to Port Isolation of better than -40dB. This, together with its capability to improve

the VSWR of an antenna system, makes the SM2000 Diplexer a powerful tool in the enhancement of any radio system.

Part number SM2000S0-4K is designed to allow 380-400MHz and AMFM to be used through a compatible antenna. [Please contact us for more frequency combinations.](#)

Part No	SM2000S0-4K	
Frequency Range (MHz)	380-400	88-108
Band	UHF	AMFM
VSWR	<1.5:1 TYPICALLY 1.2:1	<1.5:1
Insertion Loss	< -0.5dB	-
Port Isolation	< -60dB	< -60dB
Max Input Power (w)	25w	-
Connection Type	SMA (m)	

Subject to change without prior notice.

## SM4000 4 Port Multiplexer Unit



The SM4000 range of multiplexers are designed to provide an improvement of VSWR between a multiple transmitters and one aerial, whilst at the same time providing an uninterrupted broadcast radio take-off from the same aerial. In order to maintain this enhanced performance it is necessary to minimise insertion losses through the system.

The SM4000 is designed with a very low insertion loss factor of less than -0.3 dB at VHF, and Port to Port Isolation of less than -40dB. This, together with its capability to improve the VSWR of an antenna system, makes the SM4000 Multiplexer a powerful tool in the enhancement of any radio system. [Please contact us for more frequency combinations.](#)

Part No	SM4000S0-46K		
Frequency Range (MHz)	380-400	700-960 & 1750-2700	88-108
Band	UHF	LTE	AMFM
VSWR	1.5:1 TYPICALLY 1.2:1	<1.5:1	<1.5:1
Insertion Loss	< -0.5dB	< -0.5dB	-
Port Isolation	< -60dB	< -60dB	< -60dB
Max Input Power (w)	25w	5w	-
Connection Type	SMA (f)		

Subject to change without prior notice.

## SM3400 3 Port Divider / Combiner Unit



The SM3400 divider / combiner unit was specifically designed to enable two transmitters to transmit simultaneously, without the use of switching circuitry.

This passive unit can operate 380 - 400MHz with an insertion loss of less than -0.4 dB\* and isolation port to port of less than -30 dB across 20MHz bandwidth and offers a great performance against active switch units.

The SM3400 can be built to support other frequencies within 70 - 2400 MHz. [Please contact us for more frequency combinations.](#)

Part No	SM3400W50S0-4	SM3400W25S0-4	SM3400W10S0-4
Frequency Range (MHz)	380-400		
Band	Tetra x2		
VSWR	1.5:1 TYPICALLY 1.2:1		
Insertion Loss	< 0.4dB*		
Port Isolation	> 30dB		
Max Input Power (w)	50w	25w	10w
Connection Type	SMA (f)**		

Subject to change without prior notice.

\*Excluding combining losses. \*\*Custom Connection Configurations available.

### SM3500 3 Port Wilkinson Power Divider

The SM3500 'divider unit' was specifically designed to enable two GPS devices to connect to a single antenna without blocking DC input.

When used with one of our full covert antenna systems this unit can be attached to retain OEM functionality of a factory fitted satellite navigation system, and to operate a GPS enabled mobile radio simultaneously through a single GPS element helping eliminate unwanted error messages on your vehicles dashboard.

The passive unit can operate at 1575MHz and 1620MHz and supplied with custom terminations on request.

[Please contact us for more information.](#)



Part No	SM3500C1C1C
Frequency Range (MHz)	1575 - 1620
DC Input	DC fed independently from both ports
VSWR	< 1.2:1
Insertion Loss	< 0.5dB*
Port Isolation	> 20dB
Max Input Power (w)	0.5w
Connection Type	Input – FAKRA C Blue (f) / Output – 2x FAKRA C (m) Blue**

Subject to change without prior notice.

\*Excluding combining losses. \*\*Custom Connection Configurations available.

### Important Waiver Information

All information and data in this brochure is providing an indication of typical performance of our products under a common installation type, it does not guarantee performance or suitability for all installation requirements. It is therefore encouraged all customers should conduct their own tests on a product to establish it is correct for their particular installation.

Products should only be installed by a qualified installer, familiar with appropriate local laws and regulations.

We advise customers to consult and comply with the appropriate Sure Antennas installation instructions.

All specifications and product information in this catalogue are subject to change without notice.



# SureAntennas®



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