

Stingray Antenna Installation Guidelines (in vehicle)

- Part No. : MA.203 Stingray Antenna
- Product Name : Stingray 2G/3G & GPS 2in1
combination antenna
- Feature : GSM / CDMA / DCS / PCS / WCDMA / UMTS /
HSDPA / GPRS / EDGE / GPS
824MHz to 960MHz and 1710MHz to
2700MHz
RoHS Compliant



1. Introduction

This document details the best practice for installing the MA.203 Stingray inside a vehicle, to preserve antenna efficiency and gain, and to reduce interference from nearby electronic noise.

2. Antenna Placement and Cable Routing

Antennas should always be placed as far away as possible from metal and any active electronics in the vehicle, e.g. the car's radio system.

20cm (7.87") is the ideal clearance and 2cm (0.78") should be the minimum. If the antenna is placed directly on metal, the signal cannot get through the metal to the antenna.

The RF environment of each automotive vehicle model is different so a suitable installation point should be identified for each model of car separately. Measuring receive signal strength (RSSI) for cellular and TTFF (Time to First Fix - Cold Start) for GPS are the most practical and quick testing methods for installers. The device manufacturer can provide this test procedure information.

There is a sticker on each antenna
"THIS SIDE FACES THE SKY"
showing the ideal orientation of the antenna.



The antenna should not be placed with the internal patch antenna (3M tape side) facing downwards as it will not have a clear view of GPS satellites in the sky. The best positions are generally facing skyward with only plastic or glass in the way. If the view above the antenna is blocked by metal or active electronics then it may be best to place the antenna perpendicular to the sky so it still has a direct view to some satellites. Actual best performance can only be confirmed from testing in that location.

The antenna cables should be allowed to run their full length and not be coiled up as this can cause interference and cross talk. This would include not folding unused cable back on top of itself. The cables should also avoid any active electronics and not be run directly over any such systems. The two cables of the antenna should not be wrapped tightly with tape along their length, so as to prevent cross-interference, it is suggested they can be tied with nylon straps every 20cm (7.87").

The MA203 is IP65 so should be placed internally to the vehicle and not placed in an area where there can be significant water ingress. (there is a fully IP67 version available called MA203w).

The cellular antenna is tuned for mounting to plastic and glass. The antenna cannot be placed on metal directly.