

Title (en)  
A three-band antenna for vehicles.

Title (de)  
Dreiband-Fahrzeugantenne.

Title (fr)  
Antenne tribande pour véhicules.

Publication  
**EP 0350308 A2 19900110 (EN)**

Application  
**EP 89306875 A 19890706**

Priority  
JP 16994288 A 19880707

Abstract (en)  
A three-band automobile antenna assembly including an antenna mast (10) made up of two slidably and coaxially connected antenna tubes (11, 12), one of which negates a reversed-phase current for the telephone, and an antenna accommodation tube (13) which houses the antenna mast (10) therein in such a manner that the antenna mast (10) is freely retracted into and withdrawn from the tube. The antenna assembly further includes a separator (81, 82) which is connected to a feeding section of the antenna accommodation tube (13) to separate three bands consisting of telephone, FM and AM waves, and a mount (14) made primarily of plastic to mount the antenna accommodation tube (13) to the vehicle body (15). The electrical length between outer conductor of the feeding cable (21) and vehicle body (15) is set to be 0 to X/2 so that the impedance of ground circuit is substantially zero.

IPC 1-7  
**H01Q 1/12**; **H01Q 1/32**; **H01Q 5/02**

IPC 8 full level  
**H01Q 1/08** (2006.01); **H01Q 1/12** (2006.01); **H01Q 1/32** (2006.01); **H01Q 5/00** (2015.01); **H01Q 5/10** (2015.01); **H01Q 5/15** (2015.01); **H01Q 5/321** (2015.01)

CPC (source: EP)  
**H01Q 1/1214** (2013.01); **H01Q 1/32** (2013.01); **H01Q 5/40** (2015.01)

Cited by  
US5345247A; US5148183A; EP0429255A3; US5134419A; US6236374B1

Designated contracting state (EPC)  
DE ES FR GB IT SE

DOCDB simple family (publication)  
**EP 0350308 A2 19900110**; **EP 0350308 A3 19910123**; **EP 0350308 B1 19941214**; DE 68919927 D1 19950126; DE 68919927 T2 19950518; ES 2068247 T3 19950416; JP H0219004 A 19900123

DOCDB simple family (application)  
**EP 89306875 A 19890706**; DE 68919927 T 19890706; ES 89306875 T 19890706; JP 16994288 A 19880707