

INTEGRATION AND DEVELOPMENT PACKAGES DEVELOPED BY DORNIER CONSULTING*

Integration of a steerable satellite antenna

Mounting of a steerable satellite antenna on roof rails and of pointing and receiver devices in the boot.



Integration of the satellite receiver

Installation of two 19-inch racks for hosting antenna and modem devices. Integration of a car PC as receiver cache for the storage of radio, video and data files. Startup and shutdown of the PC via buttons located in the central armrest.



Power-management system

Dimensioning and installation of a power-management system for prototyping. Realisation of an adjustable timer to shut down the devices depending on an ignition-lock signal.



Operating units in the rear

Integration of a 12-inch high-resolution display in the backrest of the seat and a turn/push controller in the central armrest to show and navigate the applications.



Graphical User Interfaces (GUIs)

Development of vehicle-oriented GUI for the intuitive operation of the radio, video and data applications via a turn/push controller.



*In general, the prototype is electrically, but not mechanically, representative of the final system. A System was also integrated into a BMW, as shown overleaf.

For more information visit: <http://telecom.esa.int/mobilekureceiver>

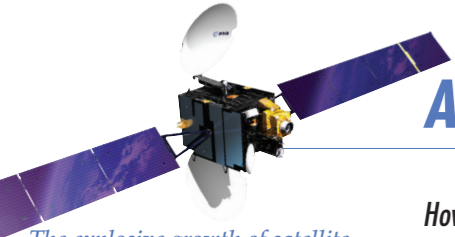
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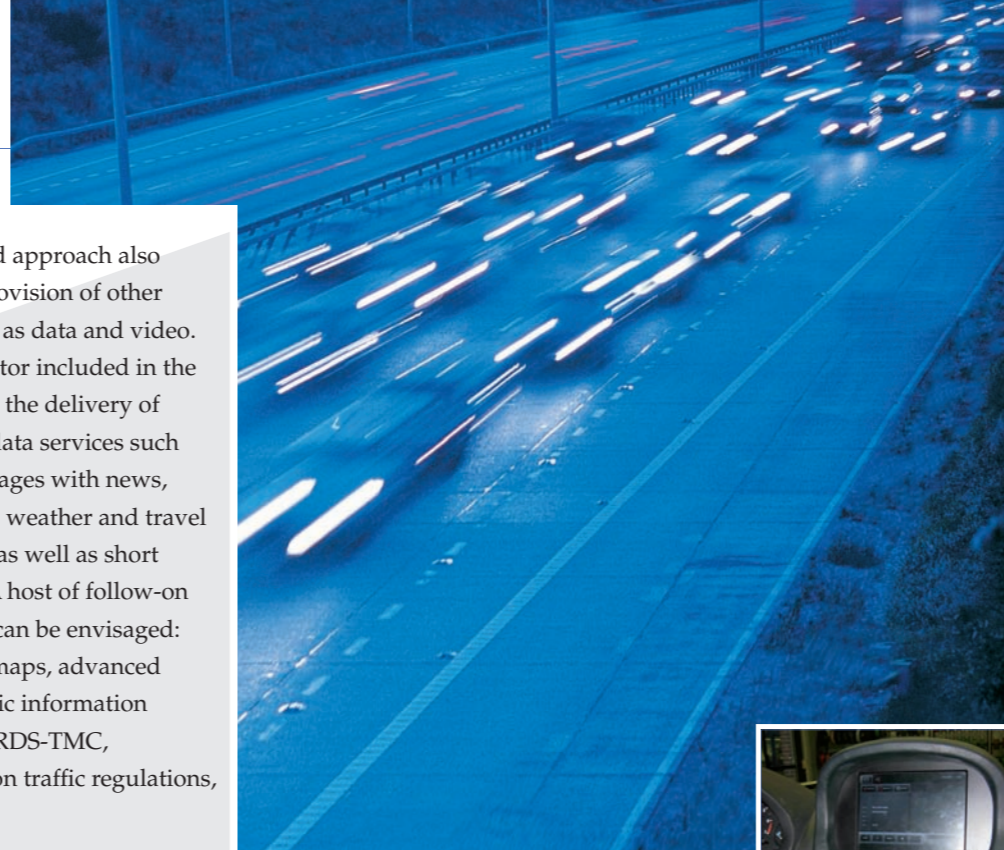
Mobile Multimedia for Cars

Personalised radio and multimedia via satellite, when, where and however you wish...!





A FILE-BASED MULTIMEDIA CONCEPT



The explosive growth of satellite digital radio means that it is already reaching over 10 million listeners in the USA. The European Space Agency (ESA) and its industrial partners are bringing the benefits of satellite radio to the European automotive market. Differing significantly from its existing commercial counterparts, the ESA-developed system will provide not only traditional radio services, but also multimedia content to drivers across Europe.

Broadcasting over a larger area and to large audiences cost-effectively, the mobile multimedia to cars system can be implemented without requiring an investment in new satellite launches or the deployment of terrestrial repeaters. It offers a highly efficient, low-investment and low-risk approach to the provision of satellite radio services to the automotive consumer market.

How it works

Reusing the existing gateway and satellite infrastructure from the satellite TV world, the ESA system broadcasts in the Ku-band without a return link to the users.

A technique known as the file-based or cached radio concept eliminates the effects of interruptions to the satellite signal, when the vehicle is travelling through a tunnel for example.

Audio content is transmitted as distinct files to the user and stored in a local cache. These files are then assembled into a coherent radio programme. Consequently, users, even when out of the satellite's view, will notice no interruptions to the broadcast, as long as there is content and files in the cache to be played.

Media on demand

Offering advantages in terms of both flexibility and redundancy, the file-based concept ensures that programmes and services presented are complete.

Unlike conventional terrestrial radio where users listen to a fixed and pre-scheduled transmission, the ESA mobile multimedia-to-car system offers each individual user the possibility of customising their radio service. Digitally recorded data gives users unprecedented control, letting them stop, restart and rewind programmes whenever they want, selecting from the cached content and determining what to play.

The file-based approach also allows the provision of other services such as data and video. A small monitor included in the radio enables the delivery of multimedia data services such as web-like pages with news, stock reports, weather and travel information, as well as short video clips. A host of follow-on applications can be envisaged: updating of maps, advanced onboard traffic information systems like RDS-TMC, information on traffic regulations, etc.



Industrial participants

A group of well-known companies and institutes has carried out demonstration work, with SES Astra taking the lead: BMW, the Deutsche Zentrum für Luft und Raumfahrt (DLR), Dornier Consulting, Deutsche Welle, Fraunhofer-Gesellschaft, Institut für Rundfunktechnik, Technische Universität Braunschweig, and TriaGnoSys. Separate projects are developing antennas for cars. A project for developing a flat, fully-electronic, steerable antenna is being led by IMST, with Adelsy, EPFL, Eurospace and Fraunhofer-Gesellschaft. A second hybrid antenna is being developed by JAST with RUAG, Micro Beam, LEMA-EPFL and SES Global as subcontractors.

