

SDMB – Radio Phase A

Applications: Mobility

“Our vision is to ensure that the envisaged SDMB system is fully interoperable with terrestrial UMTS standards in order to encourage multimedia usage adoption in Europe and contribute to the successful deployment of 3G.”

Nicolas Chuberre, SDMB Project Manager



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PROFILE:

The Satellite Digital Multimedia Broadcast (SDMB) system studied in Europe intends to enhance 3G and beyond-3G systems with the provision of a direct distribution link to cellular handsets. By taking advantage of the outstanding satellite broadcast capability with global coverage and the efficient point-to-point service capability for interactivity with terrestrial mobile systems, one can make the most of both technologies to deliver popular rich multimedia content such as mobile TV or snapshot videos to a wide audience of 3G end-users in a cost effective manner.

The system is based on a hybrid geostationary-satellite and terrestrial-repeaters architecture offering nationwide umbrella cells with in-building penetration capability. It is designed to allow the integration of SDMB features into 3G cellular handsets with a very low impact on material costs and without any form factor modifications, easing mass market entry and penetration. For this, it relies on the 3GPP UTRA FDD WCDMA standardised technology and operates in the IMT2000 frequency band allocated to satellite systems, which is adjacent to the terrestrial IMT2000 frequency band. It also makes use of high-power geostationary-satellite technology providing a high reception margin in all coverage areas.

The system interacts smoothly with the 3G architecture via 3GPP standardised interfaces. It meets the 3GPP standardised Multimedia Broadcast/Multicast Service (MBMS) requirements in terms of service offering as well as operational constraints. This feature is defined to optimise terrestrial UMTS radio/network resources usage when delivering data to several users. It implements effective power-saving features that are used in SDMB to minimise the power consumption impact.

The system preserves the operating environment since the terrestrial repeaters are designed to be co-sited with 2G and 3G base stations. They can share part of the base station equipment such as the antenna and possibly up to the baseband. The system also limits the radio exposure since the SDMB-enabled handsets are always at the cell border from the satellite standpoint and the transmission power of the terrestrial repeaters, mainly deployed in city centres, never exceeds 20 Watts.