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## DVB-NGH: The Next Generation of Digital Broadcast Services to Handheld Devices

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**Abstract:**

This paper reviews the main technical solutions adopted by the next-generation mobile broadcasting standard DVB-NGH, the handheld evolution of the second-generation digital terrestrial TV standard DVB-T2. The main new technical elements introduced with respect to DVB-T2 are: layered video coding with multiple physical layer pipes, time-frequency slicing, full support of an IP transport layer with a dedicated protocol stack, header compression mechanisms for both IP and MPEG-2 TS packets, new low-density parity check coding rates for the data path (down to 1/5), nonuniform constellations for 64 Quadrature Amplitude Modulation (QAM) and 256QAM, 4-D rotated constellations for Quadrature Phase Shift Keying (QPSK), improved time interleaving in terms of zapping time, end-to-end latency and memory consumption, improved physical layer signaling in terms of robustness, capacity and overhead, a novel distributed multiple input-single output transmit diversity scheme for single-frequency networks (SFNs), and efficient provisioning of local content in SFNs. All these technological solutions, together with the high performance of DVB-T2, make DVB-NGH a real next-generation mobile multimedia broadcasting technology. In fact, DVB-NGH can be regarded the first third-generation broadcasting system because it allows for the possibility of using multiple input-multiple output antenna schemes to overcome the Shannon limit of single antenna wireless communications. Furthermore, DVB-NGH also allows the deployment of an optional satellite component forming a hybrid terrestrial-satellite network topology to improve the coverage in rural areas where the installation of terrestrial networks could be uneconomical.

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