

EXHIBIT G



HSPA+

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UMTS

Universal Mobile Telecommunications System

UMTS is an umbrella term for the third generation radio technologies developed within 3GPP.

The radio access specifications provide for Frequency Division Duplex (FDD) and Time Division Duplex (TDD) variants, and several chip rates are provided for in the TDD option, allowing UTRA technology to operate in a wide range of bands and co-exist with other radio access technologies.

UMTS includes the original W-CDMA scheme using paired or unpaired 5 MHz wide channels in globally agreed bandwidth around 2 GHz, though subsequently, further bandwidth has been allocated by the ITU on a regional basis.

These are detailed in 3GPP Technical Specifications [25.101](#) (FDD) and [25.102](#) (TDD), and allow for the eventual re-use of bands currently assigned to 2G services.

W-CDMA was specified in Release 99 and Release 4 of the specifications. High Speed Packet Access (HSPA) was introduced in Releases 5 (Downlink) and 6 (Uplink) giving substantially greater bit rates and improving packet-switched applications.

UMTS – It's not just about radio

UMTS is not just about radio: the radio access network connects to the core network which is an evolution from the GSM core. 3GPP has expanded its capabilities, in principle allowing most services to be delivered over either 2G GERAN (GSM/EDGE) or 3G UTRAN.

The core network is becoming progressively access-agnostic, allowing home base stations serving pica-cells to connect directly to the core network via subscribers' ASDL lines.

3GPP is now working on Long Term Evolution (LTE), which will build on UMTS, as the Industry looks beyond 3G.

Just as GSM has become synonymous with the whole mobile system for 2G, UMTS is 3G, which includes the whole of the W-CDMA and HSPA specifications catalogue.

Specification work for UMTS is done in the [Radio Access Network \(RAN\) group](#)

Reading should start with the [25 series](#) of the 3GPP specifications.

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3GPP Plenary Meetings

Full Meeting Calendar

3GPP GERAN #53 - Hamburg, DE - From 27 February to 2 March
RAN/CT/SA #55 - Xiamen, CN - From 28 February to 7 March

Releases

About Releases

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	Release 8	UMTS
	Release 7	GPRS & EDGE
	Release 6	HSPA
	Release 5	IMS
	Release 4	LTE-Advanced
	Release 1999	LTE
	Functionality in early GSM releases	W-CDMA

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