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Portelligent Analysis Indicates Early UMTS Handset Designs Burdened by Complexity and High Manufacturing Costs

(Austin, Texas – Feb. 25, 2004): Portelligent, Inc., has released data generated in its product teardown program which indicate that the first generation of UMTS handsets released in Europe for use with 3G communication systems exhibit extremely high system complexity and high estimated manufacturing costs. In addition to the costs paid at auction by wireless service providers to license spectrum for UMTS systems, and the considerable investments required to install 3G network infrastructure, it will be imperative for handset makers to move to higher levels of system integration over time, and to lower manufacturing costs, in order to create an environment that makes 3G services attractive and profitable.

Product teardown analyses of three “first-wave” UMTS handsets introduced in Europe in mid-2003 – the NEC e-606, Motorola A830, and Nokia 6650 – reveal extremely high values on system-level metrics such as IC count, silicon die area, and total electronic component count, which are good predictors of overall manufacturing cost. Data released publicly by Portelligent today at the 3GSM World exhibition in Cannes, France, indicate that on these parameters, averages for the first generation of UMTS handsets dramatically exceed those for a representative 2.5G handset capable of data communications using the EDGE protocol. See Table 1 below for details.

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System-Level Metrics	Handsets Analyzed via Product Teardown			
	NEC e-606 (UMTS)	Motorola A830 (UMTS)	Nokia 6650 (UMTS)	2.5G Handset w/ EDGE (2003)
IC Count	108	68	29	13
Silicon Die Area	17.33 cm ²	7.70 cm ²	4.54 cm ²	1.93 cm ²
Total Component Count	1421	935	629	381
Connection Density	49.5/cm ²	28/cm ²	25.5/cm ²	26.5/cm ²

Table 1: Comparison of three UMTS handsets with other cellular phones along metrics of system complexity.
Source: Portelligent, Inc. (2004) **Courtesy: Mobile Europe**

Early UMTS handsets in Europe also exceed in system complexity cellular phones that implement 3G wireless communications protocols in other regions. According to Portelligent analyses, W-CDMA capable “FOMA” (Freedom of Mobile Multimedia Access) handsets introduced by NTT DoCoMo in the Japanese market in 2001-2002 had average IC counts of 32, and average component counts of 727 (versus 68 and 995 respectively for the three UMTS handsets). By contrast with UMTS, which specifies support for both W-CDMA and standard 2G GSM communications in a dual-mode approach, early FOMA handsets supported only W-CDMA-based communications.



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For information about Portelligent's product teardown analyses and other analytical offerings, including the company's work on 3G handsets contact Don Stroud (dstroud@teardown.com; Tel. 1-512-338-3600).

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