

**SMART EXHIBIT - 1017**

## **SECOND AMENDED INFRINGEMENT CHART**

Patent: U.S. Patent No. 6,243,315  
Patent Claim(s) 1

Company: **SMART MODULAR TECHNOLOGIES INC. (“SMART MODULAR”)**

### **SMART MODULAR PRODUCTS CONSIDERED**

1. All memory modules including the designation “DDR2” See Ex. 1 for a Declaration covering exhibits, and Ex. 2 for examples of DDR2 memory modules.
2. All memory modules including the designation “DDR3” See Ex. 3 for examples of DDR3 memory modules.
3. All memory modules including the designation “DDR4” See Ex. 4 for examples for DDR4 memory modules.

### **PRELIMINARY DISCUSSION**

The Court Order dated June 29, 2015 accepted the Report and Recommendations from the Special Master Scott Woloson as to claim construction. This Second Amended Infringement Chart takes into account the claim construction adopted by the Court.

No claim other than claim 1 has been asserted throughout this case. Hence, only claim 1 will be considered herein.

Smart Memory Modules DDR2, DDR3, and DDR4 do not directly infringe claim 1 of the ‘315 Patent because these memory modules do not include certain claimed elements of claim 1; however, when a Smart Memory Module DDR2, DDR3, or DDR4 is installed in operating systems such as test equipment, computers, servers and the like, claim 1 of the ‘315 Patent is directly infringed because these operating systems provide the missing elements of claim 1.

There are substantially no non-infringing uses of DDR2, DDR3, and DDR4 memory modules. Nor are these memory modules staples in commerce. Smart Modular tests the memory modules for compliance with the respective industry standards, JEDEC Specifications, and to collect data for marketing the memory modules. Hence, Smart Modular “adds” the missing claim elements for direct infringement. See Ex. 5 showing many documents from the Smart Modular webs sites stating that Smart Modular conducts tests on its Memory Modules to confirm actual performance operations.

The respective designation of the memory products as “DDR2”, “DDR3”, and “DDR4” means that the respective products comply with the JEDEC STANDARDS: See Ex. 6, DDR2 SDRAM SPECIFICATION (JESD79-2F) (hereinafter, “JESD79-2F”), under the heading, “NOTICES” stating “No claims to be in conformance with this standard may be made unless all requirements stated in the standard are met”. See Ex. 7, DDR3 SDRAM STANDARD (JESD79-3F)(hereinafter, “JESD79-3F”) and Ex. 8, DDR4 SDRAM STANDARD (JESD79-4-1) (hereinafter, “JESD79-4-1”) for the same statement under “NOTICES”.

According to its web site ([www.jed.org](http://www.jed.org)), JEDEC is a global leader in developing open standards for the microelectronics industry. Smart Modular is a member of JEDEC, and has a representative on the Subcommittee for Hybrid Modules. Hence, Smart Modular knows of the JEDEC Standards and its responsibility to comply with the standards for Smart Modular to include the designations of “DDR2”, “DDR3”, and “DDR4” in the designation of the Smart Modular memory modules.

Thus, any additional company designations in addition to DDR2, DDR3, and DDR4 does not alter the obligation of Smart Modular to comply with the JEDEC standards because the JEDEC standard is directed to the use of terms “DDR2”, “DDR3”, and “DDR4”.

## **IT IS UNNECESSARY TO COMPARE A PATENT CLAIM TO A PRODUCT DIRECTLY TO PROVE PATENT INFRINGEMENT**

The DDR2, DDR3, and DDR4 memory modules without additional equipment do not infringe any of the patent claims of the '315 Patent because certain claim elements are missing from each of these memory modules. When any of these memory modules are tested, the testing environment adds subsystems to provide inputs and outputs such as in a computer. Hence, the testing of the memory modules adds the necessary subsystems to infringe claim 1.

The JEDEC Standards for the DDR2, DDR3, and DDR4 memory modules, respectively, concentrate on the operation of the memory module, but do specify input and output terminals to receive and output information and commands for external subsystems. Hence, infringement occurs when Smart Modular carries out testing of memory modules by connecting subsystems to the input and output terminals.

Previously, it has been the rule that to establish direct patent infringement, it is necessary to compare a product or process to a patent claim to show each and every element of the patent claim is present.

This rule, however, no longer applies if there is an industry standard such as generated by JEDEC.

The Federal Circuit has recently stated:

We hold that a district court may rely on an industry standard in analyzing infringement. If a district court construes the claims and finds that the reach of the claims includes any device that practices a standard, then this can be sufficient for a finding of infringement. We agree that claims should be compared to the accused product to determine infringement. However, if an accused product operates in accordance with a standard, then comparing the claims to the standard is the same as comparing the claims to the accused product. *Fujitsu Limited et al. v. Netgear Inc.*, 620 F. 3d 1312 (Fed. Cir. 2010)

Hence, to show direct patent infringement by Smart Modular, it is only necessary to compare the respective applicable JEDEC Standards for the DDR2, DDR3, and DDR4 memory products to claim 1 and take into account the equipment Smart Modular uses for its tests, data collection, and data measured for marketing purposes by connecting the equipment to input and output terminals of the respective memory modules. Showing compliance with the JEDEC Standards is essential and cannot be done with adding equipment to connect the DDR3.

CLAIM CHART AND ASSOCIATED CONSTRUCTION

U.S. Patent No. 6,243,315

SMART MODULAR MEMORY  
MODULE DDR3

Claim 1. A memory system for use in a computer system, said memory system comprising:

a plurality of volatile solid state memory devices that retain information when an electrical power source is applied to said memory devices within a predetermined voltage range and

The Court has determined that a “memory system” is “**a system capable of retaining data**”. The JESD79-3F (Ex. 7) identifies the DDR3 as having a memory array. See p. 18, Sec. 3.2, “The DDR3 SDRAM is a high-speed dynamic random-access memory ...”. In addition, p. 79 states, “The Self-Refresh command can be used to retain data in the DDR3 SDRAM, even if the rest of the system is powered down.

Thus, the DDR3 memory module is within the scope of the preamble.

The Court has determined that “memory device” means “**integrated circuit or chip**”; that “a plurality of volatile solid state memory devices” means “**two or more memory devices in the memory system into which data may be written or from which data may be retrieved that retain information while a electrical power source, having a predetermined voltage range, is applied to the memory devices and when the voltage reaches a predetermined threshold outside of that range, the memory devices will no longer retain their current state of information**”

The JESD79-3F (Ex. 7) at p. 77 refers to the memory module as being a “chip”. See Sec. 4.15 stating, “the chip enters a Refresh cycle”. Hence, the DDR3 is a chip.

The JESD79-3F (Ex. 7) at p. 109, Sec. 6.1

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