

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF VIRGINIA  
Norfolk Division

VIRGINIA INNOVATION  
SCIENCES, INC.,

Plaintiff,

v.

Case No.: 2:12cv548

SAMSUNG ELECTRONICS CO.,  
LTD., ET AL.,

Defendants.

OPINION AND ORDER

This matter is before the Court following a Markman hearing, conducted for the purpose of construing nine disputed claim terms in the patents-in-suit. After careful consideration of the briefs submitted by the parties and the arguments advanced at the Markman hearing, the Court issues the following Opinion and Order detailing the claim constructions in this case.

**I. FACTUAL AND PROCEDURAL HISTORY**

At issue in this case are six patents: U.S. Patent No. 7,899,492 ("the '492 patent"), U.S. Patent No. 8,050,711 ("the '711 patent"), U.S. Patent No. 8,145,268 ("the '268 patent"), U.S. Patent No. 8,224,381 ("the '381 patent"), U.S. Patent No. 7,957,733 ("the '733 patent"), and U.S. Patent No. 8,135,398 ("the '398 patent"). All of the patents-in-suit claim priority to the '492 patent, which itself claimed priority to provisional

application number 60/588,359, filed on July 16, 2004. The '711, '268, and '381 patents are continuations of the '492 patent and all four share a substantively identical specification ("the '492 specification"). The '733 and '398 patents are continuations-in-part of the '492 patent; these two patents share a substantively identical specification, which includes all of the '492 specification, along with additional material ("the '733 specification"). Each of the patents-in-suit describes inventions intended to resolve the inconvenience and impracticability of viewing multimedia content on the small screens of mobile terminals.

#### **A. The '492 Patent Family**

The '492, '711, '268, and '381 patents (collectively, "the '492 patent family") are each titled "Methods, Systems and Apparatus for Displaying Multimedia Information from Wireless Communication Networks." Their shared specification and respective claims are directed toward methods, systems, apparatuses, and computer-readable mediums that can be utilized to convert multimedia signals appropriate for displaying content on a mobile terminal so as to render such content appropriate for display on an alternative display terminal.

The '492 specification describes a "mobile terminal signal conversion module" ("MTSCM"). E.g., '492 Patent, 3:52-54. The MTSCM "processes signals to accommodate reproduction by an

external device.” Id. at 3:58-59. To complete this process, the MTSCM “receives [a] video signal” and “processes the video signal to provide a converted video signal that has a display format and/or signal power level appropriate for an external display terminal that is separate” from the mobile terminal. Id. at 4:4-20.

Figures 2 and 3 of the '492 specification provide two block diagrams of the MTSCM. Figure 2 “illustrates one modular breakdown for the components of the MTSCM.” Id. at 4:55-56. “The MTSCM includes a mobile terminal interface module, a signal conversion module, and an external device interface.” Id. at 5:9-11. “The mobile terminal interface module accommodates receiving the multimedia signal from the mobile terminal.” Id. at 5:12-13. “The signal conversion module is in communication with the mobile terminal interface module and thus accesses the received multimedia signal. The signal conversion module recognizes the multimedia signal format, and processes the multimedia signal to provide a converted signal.” Id. at 5:22-27. Finally, “[t]he external device interface is in communication with the signal conversion module and thus accesses the converted signal. The external device interface also allows connection to the external (e.g., display) device . . . [and] may provide both the feeding of the converted signal

to the external device, and driving the external device.” Id. at 5:34-40.

Figure 3 is another block diagram illustrating an example of the MTSCM that “includes additional detail regarding the signal conversion aspect, and illustrates examples of differing types of external devices to which the MTSCM may provide converted signals.” Id. at 5:44-48. The MTSCM depicted “includes an interface/buffer module that is analogous to the previously described mobile terminal interface module” and in which “[t]he buffer and interfacing are configured to accommodate signal processing by the remaining elements.” Id. at 5:57-60. The MTSCM also includes a video compress decoder that “receives the multimedia signal” and “accommodates decompression of the received multimedia signal” through a “compression/decompression (CO-DEC) module.” Id. at 6:6-14. The video compress decoder “outputs a decompressed digital multimedia signal that is passed to the Digital Analog Video Encoder (DAVE) and/or the Digital/Digital Video Encoder (DDVE). The DAVE is configured to prepare signals for analog external display terminals, and the DDVE is configured to prepare signals for digital external display terminals.” Id. at 6:26-32. Both the DAVE and DDVE “receive the decompressed multimedia signal and convert the signals to the format(s) and signal power

level(s) required for the terminals to which they interface.”  
Id. 6:32-36.

Although described as a “module,” the MTSCM “may [also] be provided as software, firmware, hardware, or any combination thereof.” Id. at 4:45-47. And, “the described functionality may alternatively be provided by an MTSCM having fewer, greater, or differently named modules from those illustrated in the figures.” Id. at 4:57-60. Furthermore, although all components are shown to reside in a common location, they “may be separated such that portions of the overall functionality are respectively provided by the mobile terminal, separate intermediate housing, and/or the external display device.” Id. at 4:61-67 & 5:1-3. Finally, “the MTSCM may be independently housed separately from both the mobile terminal and external display terminal, with respective connections to other devices to provide a system configuration that includes the three pieces of hardware (mobile terminal, conversion box, external display terminal),” id. at 6:62-67, or it “may be located in either the mobile terminal or the external display,” id. at 7:7-8.

#### **B. The '733 Patent Family**

The '733 and '398 patents (collectively “the '733 patent family”) are both entitled “Methods and Apparatus for Multimedia Communications with Different User Terminals.” Their shared specification and respective claims are directed toward methods,

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