**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

NORTH STAR INNOVATIONS INC.,	
Plaintiff,	C.A. No.
vs.	**JURY DEMANDED**
HTC CORPORATION, HTC AMERICA, INC.,	
Defendants.	

COMPLAINT

Plaintiff North Star Innovations Inc. ("North Star") complains of Defendants HTC Corporation and HTC America, Inc. (collectively, "HTC") as follows:

JURISDICTION AND VENUE

1.   Title 28 of the United States Code Section 1338(a) confers subject matter jurisdiction on this Court because Defendants have infringed Plaintiff's patent. The Patent Act of 1952, as amended, 35 U.S.C. § 271, *et seq.*, makes patent infringement actionable through a private cause of action.

2.   Defendants have transacted business in the State of Delaware, and in this judicial district by making, using, selling, offering to sell and distributing products in this judicial district that violate North Star's patent. Accordingly, this Court has personal jurisdiction over Defendants.

3.   Venue is proper in the District of Delaware under the general federal venue statute, 28 U.S.C. § 1391(d), and under the specific venue provision relating to patent infringement cases, 28 U.S.C. § 1400(b).

PARTIES

4.   North Star is a Delaware corporation with its principal place of business at Plaza Tower, 600 Anton Boulevard, Suite 1350, Costa Mesa, CA 92626. North Star is a subsidiary of Wi-LAN Technologies Inc. North Star is the assignee of and owns all right, title and interest in and has standing to sue for infringement of United States Patent No.

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5,892,777 ("the '777 Patent"), entitled Apparatus and Method for Observing the Mode of a Memory Device. The '777 Patent issued April 6, 1999 and claims priority to May 5, 1997 and is attached as Exhibit A.

5.   HTC Corporation is a Taiwanese corporation with its principal place of business at No. 23, Xinghua Road, Taoyuan District, Taoyuan City, Taiwan, R.O.C. HTC Corporation has previously and is presently making, using, selling, offering for sale, and/or importing into the United States computing products (containing memory devices) that infringe one or more claims of the '777 Patent.

6.   HTC America, Inc. is a Washington corporation with its principal place of business at 13920 SE Eastgate Way 200, Bellevue, WA 98005. HTC America, Inc. has previously and is presently making, using, selling, offering for sale, and/or importing into the United States computing products (containing memory devices) that infringe one or more claims of the '777 Patent.

BACKGROUND

7.   North Star is the owner of patent rights, which cover commercially significant technologies related to observing the mode of a memory device. In particular, the '777 Patent covers a method and apparatus to observe a mode register in a synchronous memory device.

8.   Defendants design, manufacture, and sell computing products (containing memory devices) that infringe the '777 Patent.

PATENT INFRINGEMENT OF THE '777 PATENT

9.   Defendants have infringed and continue to infringe at least claim 1 of the '777 Patent, in violation of 35 U.S.C. § 271 through, among other activities, making, using, offering to sell, and/or selling their HTC One M9 Smartphone. Photos of the HTC One M9 Smartphone are depicted below, including a product photo – top view (left) and product photo – bottom view (right):
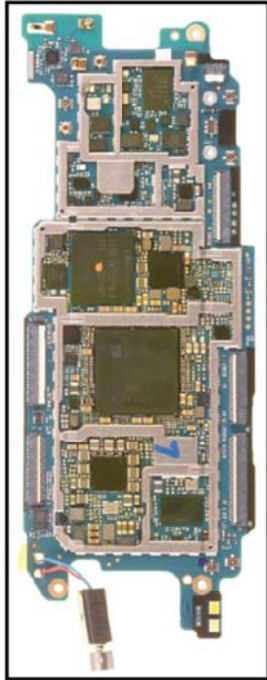
Product Photo – Top View
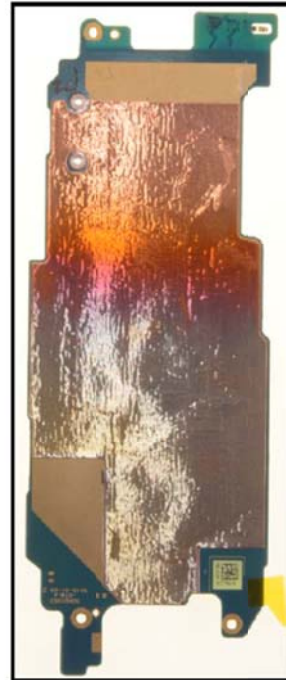

Product Photo – Bottom View

A package label photo of the HTC One M9 Smartphone is shown below:

Board photos of the HTC One M9 Smartphone are shown below, including a board photo – top view (left) and board photo – bottom view (right):
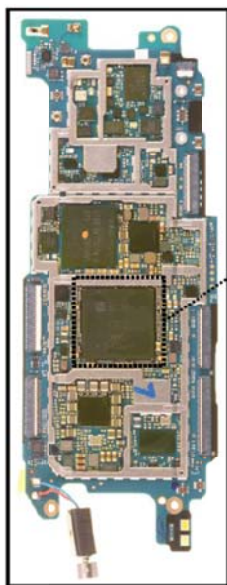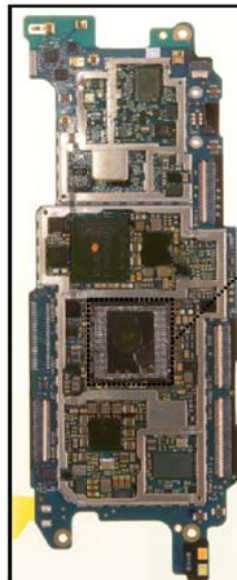
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Board Photo – Top View

Board Photo – Bottom View
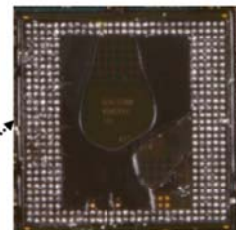
More board photos of the HTC One M9 Smartphone are shown below, with larger views of two of its components, the Samsung 24Gb LPDDR4 SDRAM Part#: K3RG3G30MM-MGCH (left), and Qualcomm snapdragon 810 processor Part#: MSM8994 (right):

Samsung 24Gb LPDDR4 SDRAM
Part #: K3RG3G30MM-MGCH
Date Code: 504
IPRG#: P-3151-2

Qualcomm snapdragon 810
Part#: MSM8994
Date Code: N/A
IPRG#: IP-3151-1

10.   Defendants' infringing technology and products include without limitation their computing products (containing memory devices), including, for example, the HTC One M9 Smartphone and other computing products. Defendants' infringement may include additional products and technologies (to be determined in discovery) marketed or used by Defendants.

11.   Claim 1 is an exemplary infringed claim. Its preamble states: "A method for observing a control register (A) in a memory device (B), the control register defining an operation of the memory device (C), the control register not observable from the memory device (D), the method comprising the steps of." Subparts of the preamble are labeled (A) through (D) for analysis purposes. Defendants' products, such as their HTC One M9 Smartphone, perform a method for observing a control register (A) in a memory device (B), the control register defining an operation of the memory device (C), the control register not observable from the memory device (D).

12.   The HTC One M9 Smartphone contains subpart (A) of the preamble, a control register, by virtue of a mode register of the LPDDR4 SDRAM. Section 3.4 of LPDDR4 JEDEC Standard JESD209-4A, November 2015 on page 19 defines the Mode Register Assignment and Definition in LPDDR4 SDRAM. Table 9 – Mode Register Assignment in LPDDR4 SDRAM shows the mode registers for LPDDR4 SDRAM. The control register is MR# 4.

13.   The HTC One M9 Smartphone contains subpart (B) of the preamble, in a memory device, by virtue of the LPDDR4 SDRAM which it contains. The memory device is the Samsung 24Gb LPDDR4 SDRAM Part#: K3RG3G30MM-MGCH.

14.   The HTC One M9 Smartphone contains subpart (C) of the preamble, the control register defining an operation of the memory device, by virtue of the contents of the control (mode) register MR# 4, including TUF for OP[7], Thermal Offset for OP[6]-OP[5], PPRE for OP[4], SR Abort for OP[3], and Refresh Rate for OP[2]-OP[0]. Section 4.34, Temperature Sensor, of LPDDR4 JEDEC Standard JESD209-4A, November 2015 on page 194 indicates that "LPDDR4 devices feature a temperature sensor whose status

can be read from MR4. This sensor can be used to determine an appropriate refresh rate."

15.   The HTC One M9 Smartphone contains subpart (D) of the preamble, the control register not observable from the memory device, by virtue of clock synchronization and the Mode Register Read Command of the LPDDR4. Section 4.20, Mode Register Read (MRR), of LPDDR4 JEDEC Standard JESD209-4A, November 2015 on page 128 indicates that "The Mode Register Read (MRR) command is used to read configuration and status data from the LPDDR4-SDRAM registers. The MRR command is initiated with CS and CA[5:0] in the proper state as defined by Table 82. The mode register address operands (MA[5:0]) allow the user to select one of 64 registers. The mode register contents are available on the first 4UI's data bits of DQ[7:0] after RL x tCK + tDQSCK + tDQSQ following the MRR command."

16.   After the preamble, the first limitation of claim 1 states: "storing a received value in the control register responsive to a first signal (E) (F)." This limitation is labeled (E) (F) for analysis purposes.

17.   The HTC One M9 Smartphone contains limitation (E), storing a received value in the control register responsive to a first signal, by virtue of internal updates of MR4. Page 194 of LPDDR4 JEDEC Standard JESD209-4A, November 2015 indicates that "TempSensorInterval (tTSI) is maximum delay between internal updates of MR4." The graph shown as Figure 114 – Temp Sensor Timing of LPDDR4 JEDEC Standard JESD209-4A, November 2015 on page 195 shows storing a received value in the control register responsive to a first signal along the Time axis at MR4 = 0x03, MR4=0x86, MR4=0x86, MR4=0x86, MR4=0x86, and MR4=0x06.

18.   The HTC One M9 Smartphone contains sublimitation (F), a first signal, by virtue of the Temperature Sensor Update, which is shown in the graph in Figure 114 – Temp Sensor Timing of LPDDR4 JEDEC Standard JESD209-4A, November 2015 on page 195.

19.   After the first limitation, the second limitation of claim 1 states: "outputting the received value responsive to a second control signal (G) when no output is expected from the memory device (H)." This limitation is labeled (G) and (H) for analysis purposes. The HTC One M9 Smartphone contains this limitation.

20.   The HTC One M9 Smartphone contains sublimitation (G), a second control signal, by virtue of the Mode Register Read (MRR) command. This command is the Host MR4 Read, shown in Figure 114 – Temp Sensor Timing on page 195 in LPDDR4 JEDEC Standard JESD209-4A, November 2015. Section 4.20, Mode Register Read (MRR), of LPDDR4 JEDEC Standard JESD209-4A, November 2015 on page 128 indicates that "The Mode Register Read (MRR) command is used to read configuration and status data from the LPDDR4-SDRAM registers." The MRR-1 command is shown in Figure 66 – Mode Register Read Operation on page 129 of LPDDR4 JEDEC Standard JESD209-4A, November 2015. Section 4.20, Mode Register Read (MRR), of LPDDR4 JEDEC Standard JESD209-4A, November 2015. The second control signal is also represented as symbols CK_t_A, CK_c_A, CK_t_B, CK_c_B, CS_A, CS_B, CA[5:0]_A, and CA[5:0]_B, shown in Table 1 – Pad Definition and Decription in Seciton 2.3 Pad Definition and Description in LPDDR4 JEDEC Standard JESD209-4A, November 2015, sent between the memory and processor.

21.   The HTC One M9 Smartphone contains limitation (H), outputting the received value responsive to a second control signal when no output is expected from the memory device, by virtue of the MRR MR4 reads from the system. These reads are shown in the graph in Figure 114 of LPDDR4 JEDEC Standard JESD209-4A, November 2015 at MRR MR4 = 0x03 and MRR MR4 = 0x86. Section 4.34 Temperature Sensor on page 194 indicates that "ReadInterval is the time period between MR4 reads from the system", and "SysRespDelay is the maximum time between a read of MR4 and the response by the system." Additionally, Section 4.20, Mode Register Read (MRR), of LPDDR4 JEDEC Standard JESD209-4A, November 2015 on page 128 states "The Mode Register Read (MRR) command is used to read configuration and status data from the

LPDDR4-SDRAM registers. The MRR command is initiated with CS and CA[5:0] in the proper state as defined by Table 82." and "The mode register contents are available on the first 4UI's data bits of DQ[7:0] after RL x tCK + tDQSCK + tDQSQ following the MRR command." Moreover, OP Code out on the DQ7:0 signal, shown in Figure 66 – Mode Register Read Operation on page 129 of LPDDR4 JEDEC Standard JESD209-4A, November 2015 shows this limitation, "outputting the received value responsive to a second control signal when no output is expected from the memory device." This is further represented as symbols DQ[15:0]_A and DQ[15:0]_B, shown in Table 1 – Pad Definition and Description of Section 2.3 Pad Definition and Description of LPDDR4 JEDEC Standard JESD209-4A, November 2015 sent between the memory and processor.

22.   After the second limitation, the third and final limitation of claim 1 states, "disabling the operation of the memory device responsive to the second control signal subsequent to the step of outputting (I)." This limitation is labled (I) for analysis purposes. The The HTC One M9 Smartphone contains this limitation (I), because the "MRR operation must not be interrupted" as indicated in Section 4.20 Mode Register Read (MRR) of LPDDR4 JEDEC Standard JESD209-4A, November 2015, and because "2. Only DES is allowed during tMRR period" as indicated in Figure 66 – Mode Register Read Operation of LPDDR4 JEDEC Standard JESD209-4A, November 2015.

23.   As a direct and proximate consequence of Defendants' infringement, North Star has been, is being and, unless such acts and practices are enjoined by the Court, will continue to be injured in its business and property rights, and has suffered, is suffering, and will continue to suffer injury and damages for which it is entitled to relief under 35 U.S.C. § 284 adequate to compensate for such infringement, but in no event less than a reasonable royalty.

24.   Defendants' infringement will continue to injure North Star, unless and until this Court enters an injunction, which prohibits further infringement and specifically enjoins further manufacture, use, sale and/or offer for sale of products that come within the scope of the '777 Patent.

JURY DEMAND

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, North Star demands a trial by jury on all issues presented that can properly be tried to a jury.

REQUEST FOR RELIEF

THEREFORE, North Star asks this Court to enter judgment against Defendants and against their subsidiaries, affiliates, agents, servants, employees and all persons in active concert or participation with Defendants, granting the following relief:

A.   An award of damages adequate to compensate North Star for the infringement that has occurred, together with prejudgment interest from the date infringement began and postjudgment interest;

B.   All other damages permitted by 35 U.S.C. § 284;

C.   A finding that this case is exceptional and an award to North Star of its attorneys' fees and costs as provided by 35 U.S.C. § 285;

D.   A permanent injunction prohibiting further infringement, inducement and contributory infringement of the '777 Patent; and

E.   Such other and further relief as this Court or a jury may deem proper and just.

Dated: August 19, 2016   Respectfully submitted,

                                          FARNAN LLP

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