DEPARTMENT OF HOMELAND SECURITY

U.S. Customs And Border Protection

Notice Of Issuance Of Final Determination Concerning

Country Of Origin Of Computer Notebook Hard Disk Drives

AGENCY: U.S. Customs and Border Protection, Department of Homeland Security.

ACTION: Notice of final determination.

SUMMARY: This document provides notice that U.S. Customs and Border Protection ("CBP") has issued a final determination concerning the country of origin of computer notebook hard disk drives.

DATE: The final determination was issued on November 22, 2016. A copy of the final determination is attached. Any party-at-interest, as defined in 19 C.F.R. § 177.22(d), may seek judicial review of this final determination within [INSERT 30 DAYS FROM DATE OF PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION CONTACT: Robert Dinerstein, Valuation and Special Programs Branch, Regulations and Rulings, Office of Trade (202-325-0132).

SUPPLEMENTARY INFORMATION: Notice is hereby given that on November 22, 2016, pursuant to subpart B of Part 177, Customs and Border Protection (CBP) Regulations (19 C.F.R. Part 177, subpart B), CBP issued a final determination concerning the country of origin of computer notebook hard disk drives which may be offered to the United States Government under an undesignated government procurement contract. This final determination, HQ H261623, was issued at the request of Seagate Technology under procedures set forth at 19 C.F.R. Part 177, subpart B, which implements Title III of the Trade Agreements Act of 1979, as amended (19 U.S.C.

§ 2511-18). In the final determination, CBP was presented with two scenarios on how the hard disk drives are produced. In the first scenario, the firmware for the hard disk drives is primarily written and installed onto the hard disk drives in the same country. CBP concluded for purposes of U.S. Government procurement, that the country of origin of the notebook hard disk drives will either be Singapore or South Korea. In the second scenario, the firmware is written in a different country from where it is downloaded. In the second scenario, for purposes of U.S. Government procurement, the country of origin of the notebook hard disk drives will be the country where the components for the devices are finally assembled, either [redacted].

Section 177.29, CBP Regulations (19 C.F.R. § 177.29), provides that notice of final determinations shall be published in the *Federal Register* within 60 days of the date the final determination is issued. Section 177.30, CBP Regulations (19 C.F.R. § 177.30), provides that any party-at-interest, as defined in 19 C.F.R. § 177.22(d), may seek judicial review of a final determination within 30 days of publication of such determination in the *Federal Register*.

Dated: November 22, 2016

Myles B. Harmon
Acting Executive Director
Regulations and Rulings
Office of Trade

HQ H261623

November 22, 2016

OT:RR:CTF:VS H261623 RSD

CATEGORY: Origin

Stuart P. Seidel, Esq.
Baker & McKenzie
815 Connecticut Avenue, N.W.
Washington, D.C. 20006

RE: U.S. Government Procurement; Country of Origin of Computer Notebook Hard Disk Drives; Substantial Transformation

Dear Mr. Seidel:

This is in response to your letter dated February 6, 2015, on behalf of Seagate Technology (Seagate), of Cupertino, California, requesting a final determination pursuant to subpart B of Part 177 of the U.S. Customs and Border Protection ("CBP") Regulations (19 C.F.R. Part 177, subpart B). Under these regulations, which implement Title III of the Trade Agreements Act of 1979 ("TAA"), as amended (19 U.S.C. § 2511 *et seq*.), CBP issues country of origin advisory rulings and final determinations as to whether an article is or would be a product of a designated country or instrumentality for the purposes of granting waivers of certain "Buy American" restrictions in U.S. law or for products offered for sale to the U.S. Government. This final determination concerns the country of origin of the "Notebook" family of hard disk storage devices under two scenarios. As a U.S. importer, Seagate is a party-at-interest within the meaning of 19 C.F.R. § 177.22(d)(1) and is entitled to request this final determination. In addition, we have reviewed and granted the importer's request for confidentiality pursuant to section 177.2(b)(7) of the CBP Regulations (19 C.F.R. 177.2(b)(7)), with respect to certain information submitted.

FACTS:

The products at issue in this final determination are a family of hard disk drives (HDD) known as "Notebook" ("NS"). The NS line currently consists of the following brand names: Ultra Mobile HDD, Laptop Ultrathin HDD, Laptop HDD, and Samsung Spinpoint. You describe two scenarios in which the HDDs will be produced. The HDDs use mechanical and electromagnetic components that are designed or specified by

Seagate in one or more of Seagate's five design centers located in the United States. Each family of HDDs consists of approximately ten products offered each year. The annual person hours required to fully design an average recording head and recording media (media), fit for integration into the HDD, was provided along with the various countries that contribute to the design. The design of the head incorporates semiconductor design, magnetic design, mechanical design, and a manufacturing process design into an integrated recording reader and writer. The design of the media integrates thin film magnetics mechanical surface design, and a manufacturing process design. On average, three heads and two media are assembled into a HDD.

The design of each family of HDDs integrates electromagnetic recording position engineering firmware design, ASIC design, and overall system design. Manufacturing and test engineering is also sourced from the design centers. The design for the NS laptop product is mostly conducted by the Singapore Science Park with support from the United States. The design of the Spinpoint product is mostly conducted by the South Korea Design Center with support from the United States.

The HDD components are manufactured internally by Seagate factories located throughout Asia, or externally at Seagate's supply partners throughout Asia. These components are shipped to a HDD assembly site in [ ]. The head disk assembly is assembled from the raw components of magnetic media, read write heads, a head actuator assembly, and an airtight metal enclosure. This assembly takes only a matter of minutes to perform. The head disk assembly is mated to a printed circuit board assembly containing the disc drive electronics. This assembly takes a few seconds. Next, the drive is loaded into the factory testing system and tested. Firmware is downloaded into the drive to facilitate media certification. At this point, the drive is only functional for testing and it can perform no useful disc drive functions at the computer interface. The drive stays in a sequence of a media certification operation for one day depending upon the capacity of the media.

Following successful media qualifications, the drive testing firmware is replaced with a generic basic disc drive firmware solely to allow the drive computer interface functions to be tested. With this firmware, the operation of the disc drive interface is tested. The basic disc drive firmware in the previous step is removed, rendering the device useless for any functional disc drive purpose. After completion of the interface testing, the drive is "forced blocked" from label and shipment (so that it is no longer treated as the standard HDD). The drive as shipped from [ ] does not function as a HDD because it lacks firmware and does not have the ability to serve as a storage device without loading the final firmware.

Final assembly and configuration are done in Singapore or South Korea for Scenario I, or in the United States for the second scenario. Once the disk drives have

been imported into Singapore, Korea, or the United States, Seagate employees perform: security preparation, visual mechanical inspection, and installation of the firmware for each HDD. The firmware will have all features and functions of the firmware for a standard HDD. The firmware will also include additional code required to configure the firmware to the customer's specifications and requirements. In addition, certain models will have additional security programming such as encryption. The architecture for encryption features was designed in the United States. The encryption installation is performed in Singapore or the United States during the firmware installation. During this time period, the drive is processed for security preparation and the encryption is enabled, the security interface is enabled, debug ports are locked, credentials are loaded, and the certificates are loaded. The firmware, primarily developed and programmed in the United States and South Korea, is installed and tested. After completion of the firmware loading and testing, a final quality assurance inspection is performed; the drive receives a new part number and a label; and it is shipped to Seagate. You explain that a drive cannot function until the firmware is loaded onto it. According to your submission, the purchased value of a fully assembled HDD is approximately 16 to 66 times the value of an assembled recording head, depending on the family, capacity, and the security features.

ISSUE:

What is the country of origin of the Notebook HDDs for purposes of U.S. government procurement in the two described scenarios?

LAW AND ANALYSIS:

Pursuant to subpart B of Part 177, 19 C.F.R. § 177.21 *et seq*., which implements Title III of the Trade Agreements Act of 1979, as amended (19 U.S.C. § 2511 *et seq.*), CBP issues country of origin advisory rulings and final determinations as to whether an article is or would be a product of a designated country or instrumentality for the purposes of granting waivers of certain "Buy American" restrictions in U.S. law or practice for products offered for sale to the U.S. Government.

Under the rule of origin set forth under 19 U.S.C. § 2518(4)(B):

> An article is a product of a country or instrumentality only if (i) it is wholly the growth, product, or manufacture of that country or instrumentality, or (ii) in the case of an article which consists in whole or in part of materials from another country or instrumentality, it has been substantially transformed into a new and different article of commerce with a name, character, or use distinct from that of the article or articles from which it was so transformed.

See also 19 C.F.R. § 177.22(a).

"The term 'character' is defined as 'one of the essentials of structure, form, materials, or function that together make up and usually distinguish the individual.'" *Uniden America Corporation v. United States*, 120 F. Supp. 2d. 1091, 1096 (citations omitted) (Ct. Int'l Trade 2000), *citing National Hand Tool Corp. v. United States*, 16 Ct. Int'l Trade 308, 311 (1992). In *Uniden*, concerning whether the assembly of cordless telephones and the installation of their detachable A/C (alternating current) adapters constituted instances of substantial transformation, the Court of International Trade applied the "essence test" and found that "[t]he essence of the telephone is housed in the base and the handset."

In *Data General v. United States*, 4 Ct. Int'l Trade 182 (1982), the court determined that for purposes of determining eligibility under item 807.00, Tariff Schedules of the United States (predecessor to subheading 9802.00.80, Harmonized Tariff Schedule of the United States), the programming of a foreign PROM (Programmable Read-Only Memory chip) in the United States substantially transformed the PROM into a U.S. article. In programming the imported PROMs, the U.S. engineers systematically caused various distinct electronic interconnections to be formed within each integrated circuit. The programming bestowed upon each circuit its electronic function, that is, its "memory" which could be retrieved. A distinct physical change was effected in the PROM by the opening or closing of the fuses, depending on the method of programming. This physical alteration, not visible to the naked eye, could be discerned by electronic testing of the PROM. The court noted that the programs were designed by a U.S. project engineer with many years of experience in "designing and building hardware." In addition, the court noted that while replicating the program pattern from a "master" PROM may be a quick one-step process, the development of the pattern and the production of the "master" PROM required much time and expertise. The court noted that it was undisputed that programming altered the character of a PROM. The essence of the article, its interconnections or stored memory, was established by programming. The court concluded that altering the non-functioning circuitry comprising a PROM through technological expertise in order to produce a functioning read only memory device, possessing a desired distinctive circuit pattern, was no less a "substantial transformation" than the manual interconnection of transistors, resistors and diodes upon a circuit board creating a similar pattern.

In C.S.D. 84-85, 18 Cust. B. & Dec. 1044, CBP stated:

> We are of the opinion that the rationale of the court in the Data General case may be applied in the present case to support the principle that the essence of an integrated circuit memory storage device is established by programming; . . . [W]e are of the opinion that the programming (or reprogramming) of an EPROM results in a new and different article of commerce which would be considered to be a product of the country where the programming or reprogramming takes place.

In *Texas Instruments v. United States*, 681 F.2d 778, 782 (CCPA 1982), the court observed that the substantial transformation issue is a "mixed question of

technology and customs law." Accordingly, the programming of a device that confers its identity as well as defines its use generally constitutes substantial transformation. *See also* Headquarters Ruling Letter ("HQ") 558868, dated February 23, 1995 (programming of SecureID Card substantially transforms the card because it gives the card its character and use as part of a security system, and the programming is a permanent change that cannot be undone); HQ 735027, dated September 7, 1993 (programming blank media (EEPROM) with instructions that allow it to perform certain functions that prevent piracy of software constitutes substantial transformation); and, HQ 733085, dated July 13, 1990; *but see* HQ 732870, dated March 19, 1990 (formatting a blank diskette does not constitute substantial transformation because it does not add value, does not involve complex or highly technical operations, and does not create a new or different product); and, HQ 734518, dated June 28, 1993 (motherboards are not substantially transformed by the implanting of the central processing unit on the board because, whereas in *Data General* use was being assigned to the PROM, the use of the motherboard has already been determined when the importer imported it).

Essentially, programming an information processing device will not in every case result in a substantial transformation of the device. It will depend on the nature of the programming, as compared to the nature and complexity of the information processing device on which the programming is completed. In other words, installing a relatively simple program on a complex information technology device will generally, by itself, not result in a substantial transformation of the device.

In this case, firmware is installed on the HDDs to enable to them operate. The website "techterms.com" explains firmware as follows:

> Firmware is a software program or set of instructions programmed on a hardware device. It provides the necessary instructions for how the device communicates with the other computer hardware. But how can software be programmed onto hardware? Good question. Firmware is typically stored in the flash ROM of a hardware device. While ROM is read-only memory, flash ROM can be erased and rewritten because it is actually a type of flash memory.

Additionally, the website http://pcsupport.about.com/od/termsf/g/Firmware.htm, notes that firmware is software that is embedded in a piece of hardware. Firmware is simply "software for hardware."

In HQ H241362, dated August 14, 2013 published in the *Federal Register* on August 21, 2013, (78 Fed. Reg. 51737), CBP considered whether the programming of HDDs resulted in a substantial transformation of the HDDs. In that particular instance, CBP issued a final determination concerning the country of origin of HDDs and self-encrypting drives produced by Seagate. In that case, Seagate imported fully assembled HDDs from two different countries. The HDDs were designed in the United States, but assembled in one of two other countries from components manufactured by Seagate outside of the United States or obtained by Seagate from a supplier in Asia. The fully

assembled HDDs were shipped to the United States, and in their imported condition they could not function as storage media devices. The disk heads could not move, they could not store or retrieve data, and they could not be recognized or listed on a computer system or a network in the United States. In the United States, the imported HDD was unblocked and programmed with two types of firmware. The first type of firmware was Servo firmware, which controlled all motor, preamp and servo function without which the motors media and heads would not operate and the HDD would not work. The second type of firmware was non-security controller firmware which managed all communication between the host and target drives, as well as all data within the drive. This type of firmware permitted data files to be stored on the HDDs media so that the data files could be found and listed within a particular application and allowed the stored data to be saved, retrieved, and overwritten. Consequently, we determined that the firmware caused the imported HDDs to function as digital storage devices. Approximately 80 percent of the work hours spent on combined firmware design was allocated to work in the United States at Seagate's design center, and approximately 20 percent in another country. Combined, the compiled firmware code was approximately 2 MB in size and contained approximately one million lines of code. The firmware loaded onto the HDDs in the United States made them fully functioning generic storage devices. In addition, some of the HDDs were programmed with security controller firmware to allow them to be secured through encryption. The security controller firmware was mostly written in the United States. Because of the nature and the complexity of the firmware, CBP found in HQ H241362 that the installation of the firmware significantly altered the character of the Seagate HDDs. Therefore, the HDDs were considered products of the United States for purposes of U.S. Government procurement.

CBP has also considered a scenario (in HQ H241177 dated December 3, 2013) in which a device was manufactured in one country, the software used to permit that device to operate was written in another country, and the installation of that software occurred in a third country. In that case, switches were assembled to completion in Malaysia and then shipped to Singapore, where EOS software developed in the United States was downloaded. It was claimed that the EOS software enabled the imported switches to interact with other network switches through network switching and routing, and allowed for the management of functions such as network performance monitoring and security, and access control; without this software, the imported devices could not function as Ethernet switches. But, CBP found that the software downloading performed in Singapore did not amount to programming. We explained that programming involves writing, testing and implementing code necessary to make a computer function in a certain way. *See Data General, supra; see also* "computer program", Encyclopedia Britannica (2013), (9/19/2013) http://www.britannica.com/EBchecked/topic/130654/computer-program, which explains, in part, that "a program is prepared by first formulating a task and then expressing it in an appropriate computer language, presumably one suited to the application." While the programming occurred in the United States, the downloading occurred in Singapore. Given these facts, we found that the country where the last substantial transformation occurred was Malaysia, namely, where the major assembly processes were performed.

Therefore, we found that the country of origin for purposes of U.S. Government procurement was Malaysia.

In HQ H240199 dated March 10, 2015, four different scenarios for the production of a computer were presented. In the third scenario, all of the hardware components were assembled in Country A and imported into Country F. The operations that occurred in Country F were that the BIOS and the OS were downloaded. The issue was whether the downloading of the BIOS and OS substantially transformed the notebook computer. We reiterated that programming a device that defines its use generally constitutes a substantial transformation. Software downloading, however, does not amount to programming. Consistent with previous CBP rulings cited above, we found that the BIOS and OS downloading did not result in a substantial transformation in Country F. Given these facts, we found that the country where the last substantial transformation occurred was Country A, where the major assembly processes were performed.

The facts involved in this case are very similar to the facts described in HQ H241362, except that in the second scenario presented, the firmware that is installed on the HDDs is largely written in a country other than the country where it will be installed. Although some of the work in writing the firmware is done in the United States, the overwhelming majority of the time and money expended in developing the firmware was expended in Singapore and not in the United States. In fact, according to the submission, in developing the firmware, more than five times the amount of time and money is expended in Singapore than in the United States. In the second scenario the only major operation that occurs in the United States to produce the finished HDDs, is the installation of the largely foreign written firmware.

For the first scenario, we find that the country of origin of the HDDs will be the country where the firmware is largely written and installed onto the HDDs, Singapore for the NS drives, and South Korea for the Samsung Spinpoint. As in H241362, the firmware, mostly created in either Singapore or South Korea and downloaded in those countries, imparts the essential character of the HDDs. The use of the HDDs is solely dictated by the firmware and it otherwise has no use. However, in the second scenario, the HDDs are assembled in one country, the firmware is largely written in another country, and downloaded in a third country, the United States. While counsel contends that the country of origin of the HDDs should similarly be the country where the firmware is downloaded because the HDD cannot function without the firmware being installed, that is not the correct test used to determine the country of origin of a product. The country of origin of a product is determined based on where the last substantial transformation occurs. As the holdings of HQ H241177 and HQ H240199 make clear, it is CBP's position that mere downloading of software that is written in another country onto an information processing device is not sufficient to be considered a substantial transformation of that device. While the downloading does make the HDD functional, the country where that occurs is not where a substantial transformation occurs. As the entire assembly process occurs in either [ ], we find that the country of origin of the HDDs will either be [ ]. This finding regarding the country of origin of

the HDDs will apply both for purposes of government procurement, as well as for country of origin marking.

HOLDING:

Based on the facts of this case, in first scenario, we find for purposes of U.S. Government procurement, the country of origin of the Notebook HDDs will either be Singapore or South Korea, where the firmware is both written and installed onto the HDDs. In the second scenario, where the firmware is written in a different country from where it is downloaded onto the HDDs, for purposes of U.S. Government procurement and country of origin marking, the country of origin of the Notebook HDDs will be the country where the last substantial transformation takes place, namely the country where the device components are finally assembled, which in this case will either be [ ].

Notice of this final determination will be given in the *Federal Register*, as required by 19 C.F.R. § 177.29. Any party-at-interest other than the party which requested this final determination may request, pursuant to 19 C.F.R. § 177.31, that CBP reexamine the matter anew and issue a new final determination. Pursuant to 19 C.F.R. § 177.30, any party-at-interest may, within 30 days of publication of the *Federal Register* Notice referenced above, seek judicial review of this final determination before the Court of International Trade.

Sincerely,

Myles B. Harmon
Acting Executive Director
Regulations and Rulings
Office of Trade

[FR Doc. 2016-28790 Filed: 11/29/2016 8:45 am; Publication Date: 11/30/2016]