

## Briggs, Mark

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**From:** oetech@fccsun27w.fcc.gov  
**Sent:** Thursday, December 19, 2013 6:24 AM  
**To:** LST.FRE.Cert Notice  
**Subject:** Response to Inquiry to FCC (Tracking Number 822597) (TCB)

**Importance:** High

**Follow Up Flag:** Flag for follow up  
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### Office of Engineering and Technology

#### **Inquiry on 11/13/2013 :**

#### **Inquiry:**

Dear OET staff,

TCB has received a request to perform a C2PC on module FCC ID B94T77H468 to allow for end-user installation of this module into notebook\laptop hosts\*\* manufactured by the grantee (HP). These notebooks/laptops will have a BIOS lock mechanism but it is a one-way BIOS lock mechanism (host validates the module but the module does not validate the host) due to issues with the latest Windows operating system.

After internal discussions it appears that FCC have allowed a one-way BIOS lock mechanism in the past under the following conditions:

- Host manufacturer must be the grantee for the module
- Host manufacturer will provide a complete description of the retail control process for the device including only selling it through Host Manufacturer
- Host manufacturer will attest that the device will be only sold for the approved host(s)
- Host manufacturer provides the description of the BIOS lock mechanism

1) Could you please confirm that a one-way BIOS lock mechanism is acceptable under the conditions outlined above?

2) If it is acceptable, is the C2PC able to be processed via TCB with, or without, PBA.

3) If PBA approval is required can the grantee leverage the PBA from this application for other modules or would those modules also require a PBA to allow installation in hosts using the same BIOS lock mechanism?

\*\* Please note that the current grant requires a 35cm separation to meet rf exposure requirements but the MPE exhibit did not account for source-based duty factor of the GSM operations. The proposed C2PC to add the user-installation for systems with the BIOS lock will also include a revised MPE exhibit that will take into consideration the source-based duty cycle for GSM operations so that the minimum distance can be reduced from 35cm to 20cm. The hosts that employ the BIOS lock and that are suitable for end-user module installation will all have antennas located toward the top of the display to provide the minimum separation distance.

### **FCC response on 12/03/2013**

Please provide an explanation on why you would need a one-way BIOS lock mechanism. You mention that the host validates the module. What is the host doing to the module in order to keep it compliant?

---Reply from Customer on 12/10/2013---

Jim - here is some additional information about the 1-way BIOS lock mechanism.

As discussed last week via phone call a BIOS lock mechanism is required to allow end-user installation. With the latest Windows 8 OS the manufacturer is having a hard time implementing a mechanism whereby the module confirms it is in the right host and can only rely on the host confirming that a module approved for use with the host has been installed. Here is how that one-way mechanism is implemented:

During the BIOS Power-On SelfTest (POST) a product specific BIOS routine reads certain PCI register values to determine if a WLAN/WWAN device is installed in the internal PCI-Express slot. If a WLAN/WWAN device is detected, the routine reads the PCI Product Device, Sub-Product, Sub-Vendor and Sub-Device Identification registers to determine if the device has been certified for use with the onboard antenna. PCI/PCIe devices which are located in the embedded slots, must be in a list of approved devices or the BIOS will display an error message, the WLAN/WWAN device will be disabled, and the boot-up will continue.

A built-in USB WLAN/WWAN device doesn't have the PCI product and device IDs, so the BIOS will use Plug and Play (PnP) information from the USB device descriptor. There is a 16-bit Vendor ID and a 16-bit Device-ID which will be concatenated to form a 32-bit PnP ID to uniquely identify the device. USB WLAN/WWAN devices which are located in the wireless module slots must be in a list of approved devices or the BIOS will display an error message, the WLAN/WWAN device will be disabled, and the boot-up will continue.

Let me know if you need additional information.

Mark

### **FCC response on 12/19/2013**

We will allow the one-way BIOS lock, since it meets the guidance. The conditions need to be addressed and be well documented in the filing. This can be certified by the TCB without the need of a PBA.

### **Attachment Details:**

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