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BY E-MAIL AND ECFS

Roger Noel
Chief, Mobility Division
Wireless Telecommunications Bureau
Federal Communications Commission
Washington, DC 20554

Re: WT Docket No. 19-272

Pivotal Commware (“Pivotal”) hereby supplements its Request for Waiver of Section 20.21(f) (“Petition”), filed September 16, 2019 in the above-referenced proceeding, to respond to several questions asked by staff of the Wireless Telecommunication Bureau (“WTB”) regarding the Echo 5G Subscriber millimeter wave device (the “Device”).

In its Petition, Pivotal stated that:

Pivotal will sell the Device only to wireless service providers, who will, in turn, provide the Device to their 5G broadband customers as an integral part of the service provider’s broadband service offering. The Device will not be available at retail. Instead, wireless service providers will deliver the Device to their customers, with instructions on how to self-install the Device on a window.¹

The Device will operate on spectrum licensed to the service provider. The Device will not be able to operate without authentication and provisioning by the service provider.²

Pivotal further stated that:

The Device cannot cause interference to wireless networks because the Device cannot operate without authentication from the service provider. In the event the customer terminates service, the service provider will be able to shut down and lock the Device remotely.³

WTB staff asked Pivotal to provide further details explaining how service providers will be able to ensure that the Device will not be used without the consent of the service provider. In particular, staff asked about what will happen to the Device after the subscriber terminates service.

¹ Petition at 2 (emphasis in original).

² Id.

³ Id. at 4.

Pivotal reiterates that it will sell the Device exclusively to service providers. In turn, service providers will distribute the Device to subscribers who need improved indoor millimeter wave coverage.

The Device cannot operate in the 28 GHz band without authentication by the service provider. The Device provides remote command and control capability to the service provider via the service provider's existing 4G/LTE narrowband IoT network. As explained above, in the event a subscriber terminates service, the service provider will disable the Device by shutting down and locking the Device remotely. The Device cannot be unlocked (except by the service provider that initially provided the Device), and thus, the subscriber will not be able to use the Device on another network. The Device will have no resale value. If a subscriber plugs in a locked Device, the Device will not transmit any RF in the 28 GHz band.

The Device includes end-to-end security and an Element Management System ("EMS"). The EMS provides "inventory" information such as the serial number, IMEI, and identification of the software and firmware versions operating in the Device. In addition to lock/unlock capability, the service provider can use the EMS to remotely reset the Device, upgrade software or firmware on the Device, configure and clear alarms or warnings, and configure settings and modes of the Device. The Device-EMS link uses security mechanisms required by the service provider including end-to-end encryption and secure boot.

Pivotal reiterates that the Device will not be available at retail. To alleviate any concerns, Pivotal advises that it has no objection to a condition stating that the waiver is applicable only if the Device is distributed by the service provider.

WTB staff also asked Pivotal to submit any additional information about the safeguards that are in place to minimize interference. First, the Device operates only in the licensed band of the service provider and under full control of the service provider, as explained above. Second, the Device must be equipment certified, and thus, Pivotal must demonstrate compliance with the Part 30 technical rules before it can sell the Device to any service provider. Third, the Device uses beamforming to create a narrow beam in the uplink direction (Device to base station). This results in a low power density close to the device and substantially reduces the potential for intra-system interference.

Finally, WTB staff asked Pivotal to address the proposed wording for a label. *Pivotal reiterates its request that the Commission waive, in its entirety, any labelling requirement for the Device.* If a label is required, Pivotal urges the Commission not to include any text that is inapplicable or confusing, and to require that label be placed only in the installation instructions and not on the device itself. In response to a question from WTB staff, Pivotal submits that the language "You MUST have an FCC LICENSE or express consent of an FCC Licensee to operate

this device,” is both inapplicable and confusing. By definition, a subscriber will not have possession of the Device absent consent of the FCC licensee – because the only way for the subscriber to obtain the Device is from its service provider (*i.e.* the FCC licensee). As noted above, Pivotal again advises that it has no objection to a condition stating that the waiver is applicable only if the Device is distributed by the service provider. By limiting the scope of the waiver, the Commission will ensure that, in all cases, no consumer will be able to obtain the Device absent the consent of the licensee.

Please do not hesitate to contact the undersigned if there are any further questions.

Respectfully submitted,

PIVOTAL COMMWARE

/s/ Robert S. Koppel

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