



July 1, 2014

Federal Communications Commission
7435 Oakland Mills Road
Columbia, Maryland 21046
USA

Subject: Model 3165D2W Wireless LAN mini-PCIe Card
FCC ID: PD93165D2
IC: 1000M-3165D2

Gentlemen:

Please be advised that the Model 3165D2W 802.11a/b/g/n/ac + BT Wireless LAN mini-PCIe card is manufactured for the global market and is marketed in the U.S. under FCC ID: PD93165D2 and in Canada under IC: 1000M-3165D2. The device deploys digital modulation techniques including BPSK, QPSK, OFDM and OFDMA.

All critical radio parameters including maximum output power, frequency bands of operation, modulation types, passive/active scanning control are programmed into the NVM and will not be accessible or cannot be changed by third parties. The transmitter is approved as a non-software defined radio and OEMs and third party system integrators do not have the ability through software to allow configuration controls that would permit the device to operate outside the grant conditions per FCC KDB 594280.

To meet requirements of 15.407 (c) data transmission is always initiated by software, which is then passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets (ACKs, CTS, PS Poll, etc) are initiated by the MAC. These are the only ways the digital baseband will turn on the RF transmitter, which it then turns off at the end of a packet. Therefore, the transmitter will be "ON" only while one of the aforementioned packets is being transmitted and will discontinue transmission in the absence of this information.

To meet requirements of 15.407 (g) the 40MHz clock is multiplied up to generate the transit signal and has a 20ppm maximum frequency stability under normal operation within the band of operation. When operating within the band the frequency error is 20ppm x operational frequency.

The non-volatile memory (NVM) will be programmed at the factory to only actively scan and operate on these specific channels during normal WLAN operation. During Wi-Fi Direct mode the device may act as a group owner (GO) to establish a peer-to-peer (P2P) network including conditions when no master device is present on these specific channels.

Channels 1-11, 2412-2462MHz 802.11b mode
Channels 1-11, 2412-2462MHz 802.11g mode
Channels 1-11, 2412-2462MHz 802.11n mode (20MHz channel)
Channels 3-9, 2422-2452MHz 802.11n mode (40MHz channel)

The device operates as a client without radar detection capability and will be programmed at the factory to passively scan on the following dynamic frequency selection (DFS) channels and will only listen for a master device and cannot send a probe request to initiate communication on these DFS channels. Accordingly passive scanning provides protection for TDWR operations and preventing transmission in the 5600MHz – 5650MHz frequency band. Client software and drivers will never enable the device to act as a master or GO for operation in DFS frequency bands and therefore ad-hoc mode is always disabled on these passive scan DFS channels.

Channels 52-64, 5260-5320MHz 802.11a mode
Channels 52-64, 5260-5320MHz 802.11n mode (20 MHz channel)
Channels 52-64, 5260-5320MHz 802.11ac mode (20 MHz channel)
Channels 54-62, 5270-5310MHz 802.11n mode (40MHz channel)
Channels 54-62, 5270-5310MHz 802.11ac mode (40MHz channel)
Channel 58, 5290MHz 802.11ac mode (80MHz channel)
Channels 100-140, 5500-5700MHz 802.11a mode
Channels 100-140, 5500-5700MHz 802.11n mode (20 MHz channel)
Channels 100-144, 5500-5720MHz 802.11ac mode (20 MHz channel)
Channels 102-134, 5510-5670MHz 802.11n mode (40MHz channel)
Channels 102-142, 5510-5710MHz 802.11ac mode (40MHz channel)
Channels 106 & 138, 5540 & 5690MHz 802.11ac mode (80MHz channel)

This device meets the requirements of FCC Part 15.202 and accordingly will be programmed at the factory to passively scan on the following non-DFS channels and will only listen for a master device and cannot send a probe request to initiate communication during normal WLAN operation. When operating in Wi-Fi Direct mode on these non-DFS channels, it may operate as a P2P client device or GO to establish a P2P network if, and only if, a master device is present and network communication is maintained between a master device and the GO.

Channels 12 & 13, 2467 & 2472MHz 802.11b mode
Channels 12 & 13, 2467 & 2472MHz 802.11g mode
Channels 12 & 13, 2467 & 2472MHz 802.11n mode (20MHz channel)
Channels 10 & 11, 2457 & 2462MHz 802.11n mode (40MHz channel)
Channels 36-48, 5180-5240MHz 802.11a mode
Channels 36-48, 5180-5240MHz 802.11n mode (20 MHz channel)
Channels 36-48, 5180-5240MHz 802.11ac mode (20 MHz channel)
Channels 38-46, 5190-5230MHz 802.11n mode (40MHz channel)

Channels 38-46, 5190-5230MHz 802.11ac mode (40MHz channel)
Channel 42, 5210MHz 802.11ac mode (80MHz channel)
Channels 149-165, 5745-5825MHz 802.11a mode
Channels 149-165, 5745-5825MHz 802.11n mode (20 MHz channel)
Channels 149-165, 5745-5825MHz 802.11ac mode (20 MHz channel)
Channels 151-159, 5755-5795MHz 802.11n mode (40MHz channel)
Channels 151-159, 5755-5795MHz 802.11ac mode (40MHz channel)
Channel 155, 5775MHz 802.11ac mode (80MHz channel)

This information when programmed into the NVM will not be accessible and cannot be changed by the end user. The transmitter is approved as a non-software defined radio and OEMs and third party system integrators do not have the ability through software to allow configuration controls that would permit the device to operate outside the grant conditions per FCC KDB 594280.

Sincerely,



Steven C. Hackett
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