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Microsoft 00002101 WLAN Module User Guide



Host Regulatory Test Requirements

This module has a conformal shield with some components like duplexers and filters outside the shield and therefore is a limited module. The host integrator will be required to file a Class II Permissive Change for each host specific installation. The following testing should be performed to demonstrate continued compliance.

Radiated Spurious Emissions (of fully assembled host device) – The worst-case mode and bandwidth based on highest power / EIRP (as applicable) & PSD / EIRP PSD (as applicable), based on the module test reports shall be tested in each of the following bands.

- For WLAN 2.4GHz, BT, BT LE – the technology with the highest power (802.11b ch 6 (2437MHz)) and highest PSD (24T RU0 2412MHz) shall be tested according to FCC Rule Part 15.205, 15.209
- For WLAN 5GHz and 6GHz, the following combination of bands shall be considered for testing according to FCC Rule Part 15.205, 15.209, 15.407 (b)
 - a. UNII 1: Highest PSD mode is EHT20 52T 5200 MHz, highest power mode is HT20 5200MHz
 - b. UNII-2A: Highest PSD mode is EHT20 52T 5260 MHz, highest power mode is HT40 5270MHz
 - c. UNII 2C: Highest PSD mode is EHT20 52T 5700 MHz, highest power mode is HT40 5550MHz
 - d. UNII 3: Highest PSD mode is VHT80 5775 MHz, highest power mode is HT20 5765MHz
 - e. UNII 4: Highest PSD mode is EHT20 106T 5865 MHz, highest power mode is HT40 5835MHz
 - f. UNII 5-8: Highest PSD mode is EHT20 52T 6175 MHz and highest power mode is EHT320 6105MHz.

Band Edge –Using the same test method employed in the module's test reports for each band. The widest and narrowest bandwidth shall be tested per band. The worst-case mode for each bandwidth shall be selected based on the highest power.

- For WLAN 2.4GHz, BT, BT LE – the technology with the highest power per bandwidth (802.11b ch 6 2437MHz and HT40 2437MHz) shall be tested according to FCC Rule Part 15.205, 15.209, 15.247 (d)
- For WLAN 5GHz and 6GHz, the following bands shall be considered for testing according to FCC Rule Part 15.205, 15.209, 15.407 (b)
 - a. UNII 1: Highest PSD mode is EHT20 52T 5200 MHz, highest power mode is HT20 5200MHz
 - b. UNII-2A: Highest PSD mode is EHT20 52T 5260 MHz, highest power mode is HT40 5270MHz
 - c. UNII 2C: Highest PSD mode is EHT20 52T 5700 MHz, highest power mode is HT40 5550MHz
 - d. UNII 3: Highest PSD mode is VHT80 5775 MHz, highest power mode is HT20 5765MHz
 - e. UNII 4: Highest PSD mode is EHT20 106T 5865 MHz, highest power mode is HT40 5835MHz
 - f. UNII 5-8: Highest PSD mode is EHT20 52T 6175 MHz and highest power mode is EHT320 6105MHz.

RF Exposure

This WLAN module meets the FCC RF exposure requirements for mobile exposure found in FCC Part 2.1091. The module should be installed into hosts which will allow users to maintain at least 20cm separation distance from the host antennas. If the module is installed into a host which will be used in portable exposure conditions where the antennas will be closer than 20cm to the user, Specific Absorption Rate (SAR) testing must be performed at the host level according to the requirements of FCC KDB's 865664, 447498, 248227, and any other applicable SAR standards to demonstrate compliance with FCC Part 2.1093.

INFORMATION TO THE USER

Note:

1. This module is intended for use in Microsoft Host Devices only.

2. In the following sections, “equipment” refers to the module tested in the standalone configuration.

FCC Statements

FCC Interference Statement

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only to reduce the

potential for harmful interference to co-channel mobile satellite systems. Transmitters in the 5.925-7.125 GHz band are prohibited from operating to control or communicate with unmanned aircraft systems.

This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

RF Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated at a minimum distance 20cm between the radiator & your body.

Per FCC KDB 996369 D03 OEM Manual v01 guidance, the following conditions must be strictly followed when using this certified module:

KDB 996369 D03 OEM Manual v01 rule sections:

2.2 List of applicable FCC rules

This module has been tested for compliance to FCC Part 15

2.3 Summarize the specific operational use conditions

The module is evaluated for standalone mobile RF exposure use condition. Any other usage conditions such as co-location with other transmitter(s) or being used in a portable condition will need a separate reassessment through a Class II permissive change application or new certification.

2.4 Limited module procedures

The module was tested in a standalone configuration and is subject to limited modular approval.

2.5 Trace antenna designs

Not applicable.

2.6 RF exposure considerations

This equipment complies with FCC mobile radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a

minimum distance of 20cm between the radiator & your body. If the module is installed in a portable host, a separate SAR evaluation is required to confirm compliance with relevant FCC portable RF exposure rules.

2.7 Antennas

The following antennas have been certified for use with this module. Antennas of the same type with equal or lower gain may also be used with this module.

- Type: PIFA
- Target Design Peak gain:
 - 2.4GHz: 6dBi
 - 5GHz: 8dBi
 - 6GHz: 8dBi

Minimum antenna gain of 6GHz is 1.1dBi for UNII-5 and UNII-7 and 0dBi for UNII-6 and UNII-8.

The end product must use a permanently attached antenna or a unique antenna connector.

2.8 Label and compliance information

The end product must be labeled in a visible area with the following: “Contains FCC ID: C3K00002101”. End-product may also use electronic labeling provided all conditions of 784748 D02 e labeling v02r01 are met. The grantee’s FCC ID can be used only when all FCC compliance requirements are met.

2.9 Information on test modes and additional testing requirements

This transmitter is tested in a standalone mobile RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) or portable use will require a separate class II permissive change re-evaluation or new certification.

2.10 Additional testing, Part 15 Subpart B disclaimer

This transmitter module is tested as a subsystem and its certification does not cover the FCC Part 15 Subpart B (unintentional radiator) rule requirement applicable to the final host. The final host will still need to be reassessed for compliance to this portion of rule requirements if applicable. As long as all conditions above are met, further transmitter

test will not be required except for the host integration test requirements stated in Section 7 of this document. The integrator (Microsoft in this case) is ultimately responsible for testing their end-product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE: If these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid, and the FCC ID cannot be used on the final product. In these circumstances, the integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Manual Information to the End User

The OEM integrator (Microsoft in this case) has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

Host manufacturer responsibilities

Host manufacturers (Microsoft in this case) are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and EMF essential requirements of the FCC rules. This module must not be incorporated into any other device or system without retesting for compliance as multi-radio and combined equipment.

ISED Statements

Industry Canada statement:

This equipment complies with ISED's licence-exempt RSSs. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with greater than 20cm between the radiator & your body.

This device is intended only for OEM integrators under the following conditions: (For module device use)

1. The antenna must be installed and operated with greater than 20cm between the antenna and users, and
 2. The transmitter module may not be co-located with any other transmitter or antenna.
- As long as the two conditions above are met, further transmitter test will not be required, except for the host integration test requirements stated in Section 7 of this document. However, the integrator (Microsoft in this case) is ultimately responsible for testing the end product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

IMPORTANT NOTE:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product

(including the transmitter) and obtaining a separate Canada authorization.

Manual Information To the End User


The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

Caution :

- (i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;
- (ii) for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;
- (iii) for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate;

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References

- [User Manual](#)

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