APM 6998 WiFi Module Manual

Host Revision Information

Host Hardware Revision	T3x Rev D1
Host-Module Driver Version	v8.1.4.4
Module Hardware Revision	001E

Host PCB Design Guidelines

The following guidelines must be followed when designing a host board that incorporates the APM 6998 WiFi Module ("module").

Host PCB Guidelines

1. The +3.3VDC power rail must be supplied by a DC/DC regulator.
2. The +1.8VDC power rail must be supplied by a DC/DC regulator.
3. A 0.050" x 0.050" ground via stitching around the front end, including antenna trace, antenna cutout and PCB edge to which the antenna is near.
4. No traces underneath the module on the same layer that the module is installed on.
5. A solid ground pour underneath the module and surrounding the front-end on the same layer that the module is installed on.
6. High Temp FR4 94V-0 IPC4101A PCB material with a dielectric constant of 4.8 and a loss tangent of 0.016 shall be used.

Antenna Guidelines

1. The antenna used must be of equal or lesser gain than the Pulse W3008C used in the original module certification, which is +2.2dBi.
2. In the case of using the Pulse W3008C:
    a. The antenna must be placed on a PCB edge.
    b. The antenna must be placed a minimum distance of 10mm from the corner of the PCB.
    c. If the antenna is not placed on a PCB edge equidistant from either end, the antenna feed shall be from the "inside" of the PCB, i.e. the longer side.
    d. The PCB guidelines for antenna layout referenced in the document "Pulse W3008C Guidelines.pdf" must be followed.

Installation Instructions

When the module is installed in an RTI product it is permanently affixed to the host product and cannot be removed without the use of additional equipment. This module is also not visible, nor accessible by the end-user. Any attempted access or removal of the module by anyone other than RTI or its authorized Contract Manufacturers is strictly prohibited.

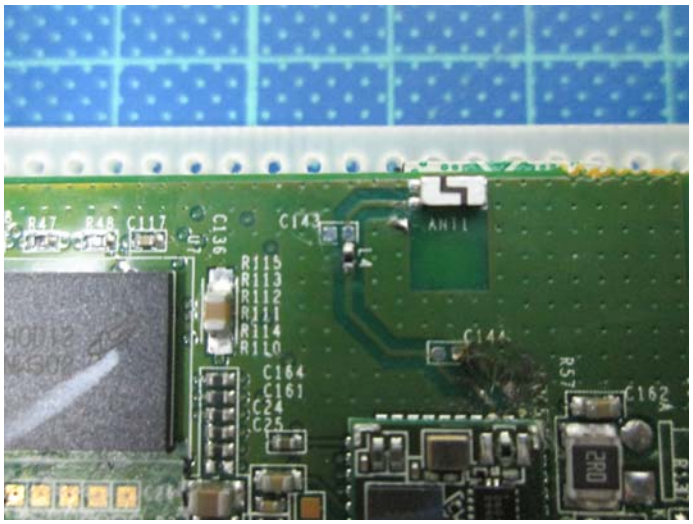
Any RTI host containing the module must adhere to RTI's strict host PCB guidelines as outlined above in order to remain compliant.

Purpose of the APM 6998 WiFi Module

The APM 6998 WiFi Module (“module”) is a module that can be installed in applicable Remote Technologies Inc. (“RTI”) products only. This module is not sold retail by RTI, nor is it provided by RTI as an OEM product to other manufacturers or companies for installation into their products. RTI and its authorized Contract Manufacturers are the only authorized installers of this module and it is not provided as a field or end-user upgrade. When properly and permanently installed in an applicable RTI product, the module will provide 2.4GHz 802.11b/g/n communication with other WiFi enabled devices.

This photo includes the Module and Host.

Antenna trace



Federal Communication Commission Interference Statement

The Operation Manual of the host RTI product will display the following information in accordance with FCC guidelines:

Contains FCC ID: MMURTI2100

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the device.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
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 Radiation Exposure Notice

-To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.
-This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter

Labeling of the end product

When the module is installed in the host device, the FCC ID/ IC label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily removed. If not, a second label must be placed on the outside of the final device that contains the following text: "Contains FCC ID: MMURTI2100"

Industry Canada Statement

The Operation Manual of the host RTI product will display the following information in accordance with Industry Canada RSS standard(s):

Contains IC: 3166A-RTI2100

This device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. l'appareil ne doit pas produire de brouillage
2. l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IC Radiation Exposure Notice

IC RF Radiation Exposure Statement
Caution: To maintain compliance with the IC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Déclaration D'exposition Aux Radiations RF De La IC
Attention : Afin de maintenir la conformité aux lignes directrices de la IC en matière d'exposition aux RF, le équipement ne doit pas être placé à moins de 20 cm d'une personne.

Labeling of the end product

The final end product must be labeled in a visible area with the following "Contains IC: 3166A-RTI2100".

This device is intended under the following conditions:

Due to there is no antenna on the module, this LMA submission is restricted to a specific host which includes the entire board and chip antenna as it is shown on page 1~2 of this user manual. This module will be integrated by Remote Technologies Incorporated only, and will be not sold or used to the other OEM integrators.

1. The antenna must be installed such that 20 cm is maintained the antenna and users.
2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
3. The W3008c WLAN antenna with 2.2 dBi gain was verified in the conformity testing. The antenna type is Chip antenna. The model number is W3008c WLAN Antenna. The manufacturer is Pulse Electronics.

Radiated transmit power must be equal to or lower than that specified in the FCC/ IC Grant of Equipment Authorization for FCC ID: MMURTI2100 and IC: 3166A-RTI2100. A separate approval is required for all other antenna type, or higher gain antenna

This module does not own its antenna on itself, and the antenna is placed on the specific host as the restricted condition of this LMA. That antenna could comply with the antenna requirement because it is a permanently attached surface mount antenna.

This is a LMA submission which is restricted for the specific host. The module is installed on that specific host for the Stand-Alone configuration. The Host Hardware Revision of Host PCB is T3x Rev D1. The Host-Module Driver Version is v8.1.4.4. The module and antenna can only be installed and repaired by RTI.

Attention: This RF Module owns its RF shielding case, but the holes of the shield is not smaller than the wavelength of the radiation that is being blocked, so a Limited Modular Approval (LMA) was granted: This RF module is strictly limited to the integration by the Grantee himself.
Proper measurements of the host device including this RF module (radiated spurious emissions and bandedge) are required to assure compliance with the FCC regulations. This RF Module must not be sold to the general public.