QUATECH

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To Whom it May Concern,

This document is to certify that all WLRG-RA-DP101 modules used with the modular approval FCCID F4AWLNG1 and IC 3913A-WLNG1 will be shipped with the software power level set to 15 or lower to comply with the tested values. This will result in a peak conducted output power level of no greater than 44.1 mW.

This statement is made pursuant to compliance with item 4(c) of FCC policy document KDB 178919 - FCC Permissive Change Policy V04R02 dated 10/28/08 (see attached copy of policy)

Best regards,

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Federal Communications Commission
Office of Engineering and Technology
Laboratory Division

Permissive Change Policies

The permissive change rules in Section 2.1043[1] describe the modifications that may be made to an RF device without filing for a new equipment authorization; define the three different types of permissive changes; and identify when a permissive change (PC) filing with the Commission is required. Note that changes to the basic frequency determining and stabilizing circuitry (including clock and data rates), frequency multiplication stages, basic modulator circuit or maximum power or field strength ratings will always require a new FCC ID and a new equipment authorization application to the FCC.

This document defines general permissive change policies - other more specific policies may be described in other interpretation documents. Permissive changes and policies are addressed in this document as they apply to the following categories:

- Antenna changes
- PCB and Hardware changes
- Enclosure changes
- Software changes
- Miscellaneous changes

Related Notes:

1. When a device is modified, all proposed changes must be considered to determine the type of filing required. For example, a software change to add additional frequencies may be authorized by a permissive change; however, if the power in the new frequency band increases, then Section 2.1043 requires a new equipment authorization filing.
2. When a Class II permissive change is filed for either EMC or RF exposure (RFE) purposes, an EMC test report or RFE evaluation is required, regardless of whether EMC or the RFE levels have degraded[2].
3. Guidance for permissive change policies for Hearing Aid Compatibility (HAC) is contained in a separate publication: 285076 Equipment Authorization Guidance for Hearing Aid Compatibility.

1 Antenna changes:

a) Equivalent-type Part 15 antennas
   i. A Part 15 Certification application includes an antenna list and photos.[3] The antenna type(s), gain, model number and manufacturer are usually stated. Additional equivalent antennas may be substituted, then marketed and / or used by any party, without a new equipment

[1] Referenced from Sections 2.932, 2.931, 2.927(b), 2.907, etc.
[2] Degradation for EMC parameters:
   1. Any increase in the fundamental emission for output power rated devices is considered degradation. Section 2.1043 does not allow an increase in maximum output power rating without application under a new FCC ID.
   2. Spurious emissions - an increase of up to 3 dB from the original authorization is allowed, if the emission level is compliant.
[3] Sections 15.204(c)(3), 2.1033(b)(4), 2.1033(b)(7); recall also that per Section 15.204(b) all Part 15 intentional radiators must be marketed with at least one antenna, except in certain situations such as where a filing has justified professional installation (Section 15.203).

authorization application. Exceptions based on Section 2.1043 compliance requirements include:

(1) A UNII device with DFS - Testing of the lowest gain antenna IS required to comply with the DFS requirements. Therefore, a permissive change is required for any antenna with lower gain than previously approved antennas.

(2) Portable devices - SAR levels should be compared to those in previous authorizations under the same FCC ID, to determine if a Class I or Class II must be filed (see item 5 below).

ii. Additional equivalent antennas must be of the same type (e.g. yagi, dish, etc.) and must be of equal or less gain than an antenna in previous authorizations under the same FCC ID.

iii. Equivalent antennas must have similar in band and out of band characteristics (consult specification sheet for cutoff frequencies).

b) Part 15 new antenna types

i. Any new antenna type, or higher gain antenna, requires a Class II permissive change.

ii. Compliance with Section 15.203 must be met. An end-user / operator may substitute standard connector for a unique connector, but may no longer market the device.

c) Antenna replacement for licensed service transmitters.

i. Antenna changes may be made without an authorization request, if adherence to the grant conditions for RFE compliance and applicable maximum ERP/EIRP rules is observed. Otherwise, an equipment authorization application is required.

ii. An integral antenna requirement (e.g. GMRS, FRS transmitters, etc.) means that the antenna is not user replaceable, or is not removable.

2 **Printed Circuit Board (PCB) or hardware changes:**

a) Changes described in Section 2.1043(a) that result in a non-electrically equivalent device require a new FCC ID.

b) Versions of a device with different internal active hardware components (e.g. amplifiers and crystals) that result in different radio parameters (e.g. output power, frequency) require authorization under a different FCC ID for each version, because the versions are NOT considered electrically identical[4]. For example, versions of a device with different internal filter designs that operate on different frequencies must be filed under different FCC IDs.

c) Part substitution - electrically identical parts may be substituted. An initial evaluation of test results will determine if a Class I or Class II application is required. A chip replacement of a portion of the transmitter that performs some sub-function such as an amplifier chip, oscillator chip or frequency determining chip may be considered a Class II permissive change under the

[4] Electrically identical device considerations:

1. For Part 95 devices (i.e. 95C) the FCC does not allow device designs that permit end users to change plug-in crystals. When the plug-in crystal is only changed by the Original Equipment Manufacturer (OEM), the grantee may receive authorization for multiple crystals under one FCC ID. Historically, this has not been considered a design change for Part 95 devices, as the change involves exchanging one crystal for another. A permissive change request for a new crystal(s) is acceptable if the new crystal does not cause the frequency range to exceed that granted in the original authorization. A new FCC ID is required if the new crystal causes the device to exceed the frequency range approved in the original authorization.

2. If the transmitter PCB board and enclosure remains the same, external or internal mechanical passive filters for a transmitter may be approved under one FCC identifier and/or can be added with a Class II permissive change even if the mechanical passive filters result in different frequency bands of operation. If the change in these filters result in reduced frequency band from the original grant and all emissions have not been degraded, a Class 1 change is acceptable.

3. Part 74 and Part 90 wireless microphones - Minor differences in passive components (resistor or capacitor) for internal circuitry is allowed in an original application for authorization, but not in a permissive change application

following conditions; however, a replacement of chip that constitutes a complete transmitter will require a new FCC ID.

i. The new chip component is pin for pin compatible.
ii. The new chip has the same basic function as the old chip, from an external perspective (Internal circuitry may differ.).
iii. No change in radio parameters has occurred.
iv. The same conditions apply when a small area (approximately the same as the chip) of the PCB is replaced with an equivalent chip.

d) Adding or subtracting an on-board amplifier component requires a new FCC ID.
e) A transmitter with and without an external amplifier may be authorized under one FCC ID, if approved in the original authorization. Adding an external amplifier is not allowed with a permissive change. A new equipment authorization application with a new FCC ID is required to add an external amplifier.
f) Transmitters may not be modified and approved with a permissive change, if an internal amplifier is added or subtracted. Transmitters with and without an internal amplifier require two equipment authorization applications, with two FCC IDs.
g) Depopulated versions of a transmitter require authorization under separate FCC IDs for each version.
h) Non transmitter portions (such as receiver or peripheral circuits) can be depopulated, and may be approved under one FCC ID. For example, a cell phone with or without a digital display may be approved under the same FCC ID.

3. **Enclosure changes:** For non-modular approved devices, only minor changes to an enclosure are allowed with a permissive change. If the basic functionality and intended usage are not the same, a new FCC ID is required. For example, approval of a desktop and tower computer under the same FCC ID, or a laptop and desktop under the same FCC ID, is not permissible.
4. **Software changes:** Class I and Class II software changes for non-SDR approved devices - the following software only changes are allowed.

a) Additional frequencies may be added to an approved device under the following conditions; however, a new test report must be submitted for the new frequencies:
   i. Additional frequencies are allowed with a Class II permissive change if:
      1. No hardware changes have been made.
      2. There is no increase in output power rating on new frequencies.
      3. The Equipment Class remains the same. Changes that require a new Equipment Class code require a new FCC ID, except for SDR approvals.
      4. RF exposure changes must be addressed.
      5. Only the Original Equipment Manufacturer may implement the new frequencies.
      6. There are no other changes to the device that indicate a need for a new FCC ID.
   ii. End user software implementation for new frequencies is not allowed unless the device was approved as a software-defined radio. (Class III permissive change rules for software defined radios are in Section 2.1043(b)(3)).
b) Adding new line items on the Form 731 is allowed under a Class II permissive change. Additional data rates (both higher and lower rates) under existing modulations that are consistent with a Form 731 line item/emission designator may be either a Class I or Class II, depending on emissions. A Class II permissive change is required if degradation occurs; if no degradation occurs a Class I permissive change is acceptable.
c) A Class II permissive change for a device with a decrease in output power, or with a different field strength, is allowed under the following conditions:

i. The maximum output power rating of the original authorization does not change.
i. There is no design change that increases or decreases the output power. A decrease in the power setting configuration is acceptable.
ii. In no case, may a power limit be exceeded.

5 **Permissive changes and RF exposure considerations:**

a) Class II permissive change filings should include RF exposure evaluation results for at least the device and evaluation configurations corresponding to the highest RF exposure condition reported in previous authorizations under the FCC ID.
b) For portable devices, RF exposure evaluation requirements for Class II permissive change requests are based on the following:
   i. Comparison of the highest measured SAR among all the configurations tested for each operating condition (i.e. next to the ear and worn on the body) obtained for the original authorization, to the highest SAR tested for the modified device under similar test configurations.
   ii. For each frequency band, if the highest measured SAR of the modified device for a certain configuration (i.e. the head or body) is larger than the highest measured SAR for the original device, under similar test configurations; then in the Class II permissive change request, SAR shall be addressed for the applicable operating configurations in each frequency band.
   iii. Changes in antenna, and/or key radiating or metallic structures for portable devices ,require SAR evaluation to determine if a Class I or Class II permissive change is required.
      1. SAR is primarily dependent upon the near fields and RF current distributions on a device; therefore, minor and simple metallic changes may cause relatively large changes in SAR.
      2. Antenna gain is normally considered a far field parameter (e.g. Sections 15.31(f) and 2.1053(a), OET Bulletin 65, Section 2.1); however, SAR is primarily dependent on the near fields. SAR compliance considerations are separate from the Section 15.204 antenna gain provisions.
c) Permissive change applications that include a change in exposure limits, or in device use configurations, must abide by the following guidelines:
   i. Class II permissive change applications may not be used to resolve unaddressed or misrepresented exposure issues for device configurations in the original authorization. For example, original cell phone handset applications usually include SAR compliance information. A permissive change may not be used to amend an application if SAR was inappropriately not included, or if the device was represented as being for only mobile, not portable use.
   ii. Examples of allowed permissive changes for devices having mobile and portable use configurations (different exposure limits, i.e. MPE and SAR) include:
      1. Requesting authorization to add a mobile passive vehicle mount antenna to a portable held-to-head, body-worn and hand-held device (Equipment Classes TNE, PCE, PCT, TNT). The following application requirements apply:
         a) Include a new grant line entry and radiated power, if applicable.
         b) Include an MPE evaluation, if applicable.
         c) Provide specific and separate grant remarks for mobile and portable usage conditions.
      2. Requesting authorization to add specific hosts or antennas for Limited Modular Approval (LMA) devices (and include SAR evaluation, if applicable).

6 Miscellaneous changes

a) A non-modular to modular approval change requires a new FCC ID, and a change from a full modular approval to a Limited Modular Approval (LMA) requires a new FCC ID.

b) A change from a software defined radio (SDR) to a non-SDR or vice versa requires a new FCC ID.

c) A new modulation (e.g. EDGE) added by the grantee via software, that is not added to units in the field, requires a Class II permissive change.

d) Disabling modulation (e.g. removing GSM): If a device has components on it that are disabled by software or keyboard function, the change to the device may be approved under the same FCC ID as the original. However, if the modulation function of a device is disabled by having the parts removed, approval under a new FCC ID is required.

e) Change in FCC ID filings (Section 2.933) in conjunction with a permissive change filing (Section 2.1043): Where both a permissive change and a change in FCC ID are required by the grantee, the Section 2.933 change in FCC ID application (or applications in the case of composite Equipment Class FCC IDs) must be processed first, followed by the Section 2.1043 permissive change filing(s).

Change Notice:

78919 D01 Permissive Change Policy v04ro1 has been changed to a new revision under the same version to **78919 D01 Permissive Change Policy v04r02 for clarification.**

Note 4 Electrically identical device considerations item 2

The following sentence was added: If the change in these filters result in reduced frequency band from the original grant and all emissions have not been degraded, a Class 1 change is acceptable.

78919 D01 Permissive Change Policy v04 has been changed to a new revision under the same version to **78919 D01 Permissive Change Policy v04r01 for clarification.**

Change 1:

2. Printed Circuit Board (PCB) or hardware changes:

c) Part substitution - electrically identical parts may be substituted. An initial evaluation of test results will determine if a Class I or Class II application is required.

Has been changed to:

2. Printed Circuit Board (PCB) or hardware changes:

c) Part substitution - electrically identical parts may be substituted. An initial evaluation of test results will determine if a Class I or Class II application is required. A chip replacement of a portion of the transmitter that performs some sub-function such as an amplifier chip, oscillator chip or frequency determining chip may be considered a Class II permissive change under the following conditions; however, a replacement of chip that constitutes a complete transmitter will require a new FCC ID.

i. The new chip component is pin for pin compatible.
ii. The new chip has the same basic function as the old chip, from an external perspective. (Internal circuitry may differ.)
iii. No change in radio parameters has occurred.
iv. The same conditions apply when a small area (approximately the same as the chip) of the PCB is replaced with an equivalent chip.

Change 2:

2. Printed Circuit Board (PCB) or hardware changes:

i) Transmitter chip replacements are consider a Class II permissive change under the following conditions:

i. The new chip is pin for pin compatible.
ii. The new chip has the same basic function as the old chip, from an external perspective. (Internal frequencies may differ.)
iii. No change in radio parameters has occurred.
iv. The same conditions apply when a small area (approximately the same as the chip) of the PCB is replaced with an equivalent chip.

i) has been deleted and merged with 2 (c).

1. If the change in these filters result in reduced frequency band from the original grant and all emissions have not been degraded, a Class 1 change is acceptable.