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Subject: FCC Testing for Actilume (C2PC)

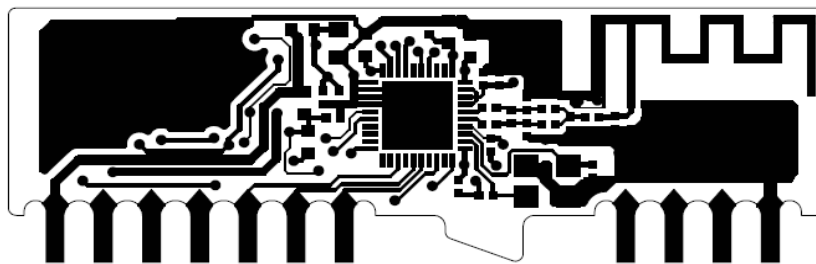
Date: 2014-04-25

Dear Bart,

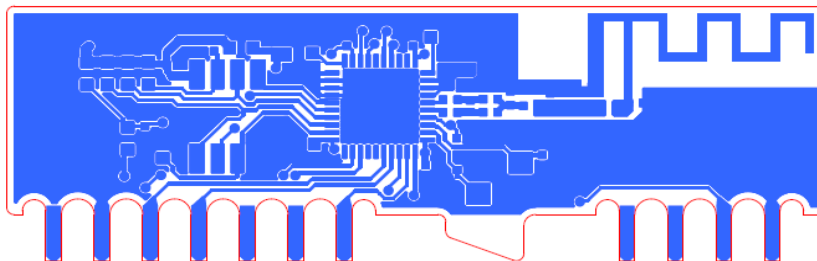
The changes for the new device (LLC1682) are as follows:

- A flash chip added to LLC1682 to store some configuration data
- PCB layout changed a little bit, see following.(antenna on the top at right hand changed a little bit)

LLC1681 Vs. LLC1682:



LLC1681



LLC1682

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- Regarding the transmit power please refer to the LLC1681 test report. AWOS (LLC1681) is tested with maximum power. Same configuration for the new device (LLC1682).

1.4 EUT Operation Modes

Mode #	Description
1	TX Mode on Low, middle and High channels
2	TX board removed, electronics only

1.5 Rational for EUT Configuration

Mode #	Description
1	The selected EUT configuration was chosen to maximize emissions. Various configuration were explored and EUT positioning. Only the worst case data is reported.

In addition, to address the class 2 permissive change the following was used as a reference:

<https://apps.fcc.gov/kdb/GetAttachment.html?id=ZIDEh0DKnjZmV2QXZxJPw%3D%3D>

Paragraphs 1 and 2 seem to cover the changes that were made to the product.

The original testing done back in 2012 shows the maximum peak level of the fundamental at 93.22dBuV/m. The new test data shows the maximum peak level of the fundamental at 89.37dBuV/m. The new sample seems to have power level that is 4dB lower than the original one.

To address the questions there:

- The transmit power is a bit lower than previous product, it is reasonable,
- According to document linked, *"if the power in the new frequency band increases, then Section 2.1043 requires a new equipment authorization filing"*
- Currently not only without new frequency band but also no power increased in product, so I don't think we need apply a new ID,
- In additional, the product meet following requirement, there are no any change in these items.

Based on paragraph 2c, I think we can make the following conclusions.

- c) Part substitution – electrically identical parts may be substituted. An initial evaluation of test results will determine if a Class I or Class II PC application is required. A chip replacement of a portion of the transmitter that performs some

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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, replacement of a chip that constitutes a complete transmitter shall require a new FCC ID:

- (i) The new chip component is pin-for-pin compatible. - TRUE, same number of pins that interface in the same way from the RF daughter board to the main board.
- (ii) The new chip has the same basic function as the old chip, from an external perspective (internal circuitry may differ). - TRUE, we are testing to and conforming to the previous report.
- (iii) No change in radio parameters has occurred. - TRUE, the frequency is the same and the power did not increase.
- (iv) The same conditions apply when a small area (approximately the same area as the chip) of the PCB is replaced with an equivalent chip. - TRUE, in the PCB layout referenced in the previous emails below, you can see the same chip and area on the PCB.

Please let me know if any more detail needed.

For your reference, I have embedded the specs for both daughter boards.

Updated RF Spec:



AWA RF
Spec_442240179383

Previous RF Spec:



AWOS LLC1681 RF
Spec_442240092671

Sincerely,

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