**Factory Test Instructions for Air To All PAPR Version 2**

The PAPR factory test is firmware that briefly exercises the PAPR hardware, including microcontroller board, buzzer, vibrator, and fan, in order to verify that all components are working properly. The test is intended for use at the factory, to verify that newly-manufactured PAPRs have no defects.

To test a PAPR board after manufacturing, program the unit with the Factory Test firmware, then perform the following steps in order. For each step, do the action, then verify that the expected result happens. The beginning and end of each test is signaled by a quick sequence of LEDs. After the end signal, you can move on to the next test.

|  | ***Action*** | ***Expected result*** |
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| 1 | Startup PAPR | All 7 LEDs flash 3 times |
| 2 | Press and release FAN DOWN button | All LEDs flash, one at a time, left to right |
| 3 | Press and release FAN UP button | Buzzer beeps 3 times |
| 4 | Press and release FAN UP button | Vibrator vibrates 3 times |
| 5 | Press and release FAN UP button | Fan runs at maximum power |
| 6 | Press and release FAN UP button | Fan runs at half power |
| 7 | Press and release FAN UP button | Fan runs at minimum power |
| 8 | Press and release FAN UP button | Battery Voltage Test. For now, the 7 LEDs will display the input voltage: 1 LED = 12 volts, 7 LEDs = 24 volts. You should vary the voltage and verify the LEDs change accordingly. TBD: what should the test be? |
| 9 | Press and release FAN UP button | Fan RPM test. For now, the raw Fan RPM value is displayed in binary on the LEDs. TBD: what should the test be? |
| 10 | ? | Monitor Pin test. TBD: what should the test be? |