PCB Factory Test for the Air To All PAPR Version 2

The PAPR factory test is firmware that exercises the PAPR PCB in order to verify that the PCB is working properly. The test is intended for use at the factory, after the PCB is manufactured, but before the PAPR is assembled.

To test a PAPR board
- program the board's microcontroller with the Factory Test firmware
- plug a fan and a buzzer into the board
- power the board with a power supply capable of various voltages between 12V and 24V
- perform each action in the following table, and verify that the expected result happens

The beginning and end of each test is signaled by a quick sequence of LEDs. After you see the end signal, you can move on to the next test.

	Action	Expected result	What is tested
1	Press POWER ON button, hold for 1 second	All 7 LEDs flash several times, fan comes on at minimum speed.	Power On button, power circuitry, LEDs, fan drive
2	Press and release FAN DOWN button	All LEDs flash, one at a time, left to right.	Fan Down button, LEDs
3	Press and release FAN UP button	Buzzer beeps several times.	Fan Up button, buzzer
4	Press and release FAN UP button	Fan runs at maximum speed, no LEDs lit.	Fan Up button, fan drive, fan sensor
5	Press and release FAN UP button	Fan runs at half speed, no LEDs lit.	Fan Up button, fan drive, fan sensor
6	Press and release FAN UP button	Fan runs at minimum speed, no LEDs lit.	Fan Up button, fan drive, fan sensor
7	Press and release FAN UP button	The 7 LEDs display the input voltage: 　　1 LED = 12V 　　…. 　　7 LEDs = 24V Vary the input voltage and verify that the LEDs change accordingly. The test ends after 10 seconds.	Fan Up button, battery sensor
8	Press POWER OFF button, hold for 1 second	All LEDs go off, fan stops.	Power Off button, power circuitry

In the fan tests 4, 5, and 6, if any LEDs are lit, this indicates a fan sensor error.