

1 December 2012

Orbotix, Inc.  
1155 Canyon Blvd, Ste 210  
Boulder, CO 80302

This letter is in response to your request for additional information on Orbotix's Sphero.

The specific questions are from KDB 996369, Questions 11:

1. Trace layout and dimensions including specific designs for each type:
  - a. Layout of trace design, parts, antenna, connectors and isolation requirements;
  - b. Boundary limits of size, thickness, length, width, shape(s) dielectric constant, and impedance must be clearly described for each type antenna;
  - c. Different antenna length and shapes affect radiated emissions and each design shall be considered a different type; e.g., antenna length in multiple(s) of frequency wavelength and antenna shape (traces in phase) can affect antenna gain and must be considered;
  - d. The above data is to be provided by a Gerber file (or equivalent) for PC layout.

Gerber Files have been provided

2. Appropriate parts by manufacturer and specifications.

The only part affected by the change to the RF transmitter is:

- The PCB printed antenna was replaced by an external wire antenna; 27.0 mm long and angled 30 degrees from the plan of the PCB. Maximum gain is 2.89 dBi

3. Test procedures for design verification.

Our design verification is achieved by using tight manufacturing tolerances in production that ensure compliance to FCC requirements.

4. Production test procedures for ensuring compliance.

There are no variations or tuning involved in production.

Components are the same from unit to unit.

The fixed build ensures compliance with FCC requirements.

These answers should adequately address the questions you've asked us to address. Please feel free to call or email me directly if any further questions come up.

Sincerely,



Ben Wirz  
VP, Orbotix, Inc.  
[ben@orbotix.com](mailto:ben@orbotix.com)  
303.819.8916