Re: FCC ID RBT99061003

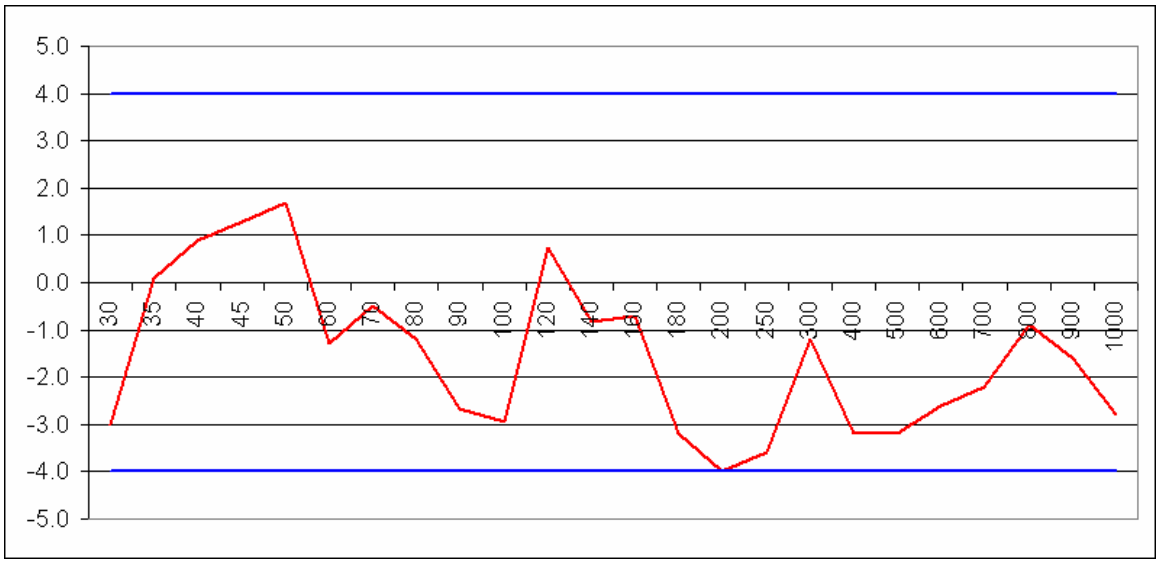
Applicant: PipeHawk Plc
Correspondence Reference Number: 26325
731 Confirmation Number: EA540369

**Quote:** "1. *You state that the ground plane is beneath the concrete slabs during tests. The photo's show this also. Remove these slabs and place a 20 inch bed of sand beneath the EUT. Do not put any ground plane beneath the device, remove it. Please retest. Please keep in mind the following and also past measurement issues."*

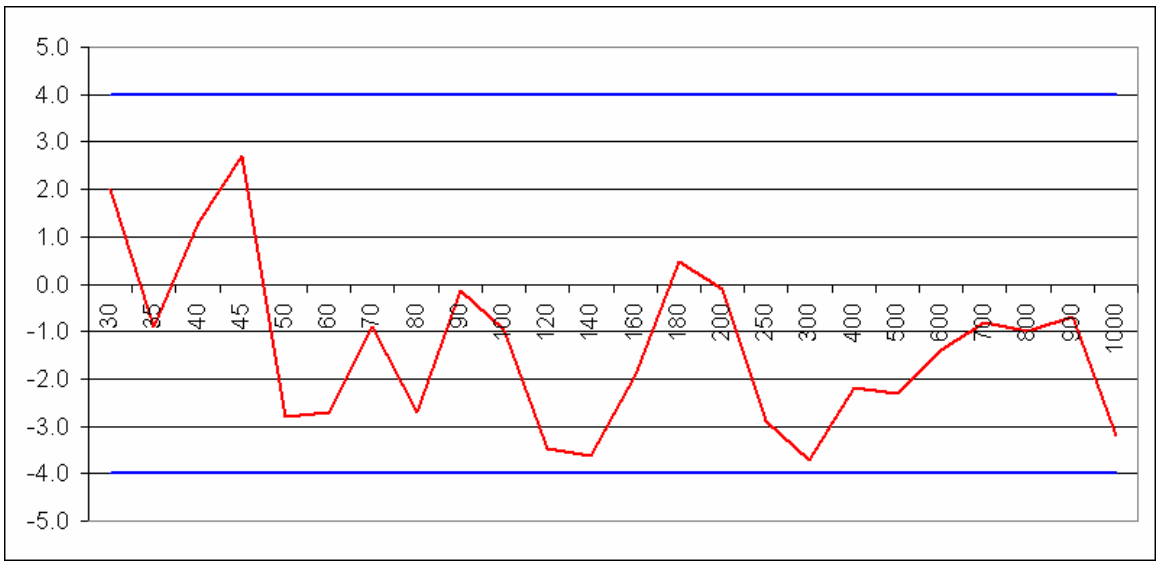
**Response:** I can confirm that the EUT was placed on a 20 inch bed of sand. The bed of sand was placed on a protective layer of none conductive stone slabs. The slabs are used to protect the ground plane.

The ground plane is none removable and was used in line with the FCC's own guidelines as stipulated by the FCC in there First Report and Order Docket 98-153 Appendix F (7) which states "*Field strength measurements may be performed without the use of a ground plane; however, a factor of 4.7 dB must be added to the measurement results thus obtained*." This implies a ground plane may be used without the addition of 4.7 dB.

The stone slabs serve the purpose of protection for the ground and have no direct effect on the final result. The measurement is made in compliance with C63.4 5.4 & 5.5. The site attenuation also fits within the specified criteria of C63.4 5.4.6.3 confirming the lack of influence the slabs have on the final result. Please see the following graphs showing the NSA.




Graph 1: NSA - Horizontal Polarization.




Graph 2: NSA - Vertical Polarization.

**Quote:** "2. Verify the type of Average detector used for making average measurements. Ensure/verify that RMS average is used. The proper integration time is required. You state that CISPR 16-1 is used. This is a measurement standard. Use a RMS detector not an average detector for measurements above 1 GHz and show and explain how the integration time is properly set."

**Response:** I can confirm that an RMS average detector was used and that its characteristics are as detailed within CISPR 16-1.in the section on CISPR measurement receiver characteristics.

**Quote:** "3. State the pulse width of the device. Ensure that this agrees with the manufacturers specification."

**Response:** Please see previous correspondence for appropriate response.

**Quote:** "4. A high gain amplifier was not listed in the measurement instrument list. This is required for these measurements to obtain enough sensitivity especially for measurements for 15.509(e). Please explain/correct.

**Response:** Please see previous correspondence for appropriate response.
**Quote:** "5 Page 29 o f 32 still states that different detectors were used when measuring the UWB bandwidth. Quasi peak measurements were made below 1 GHz and peak above 1 GHz. Use peak for below and above 1 GHz and use the same RBW to measure the UWB bandwidth. Please explain/correct or retest accordingly as requested previously."

**Response:** I can confirm that page 29 states peak detector only. Here is a quote to the reference in the report that was sent too you "*The Ultra Wide Bandwidth was measured using a peak detector*". There are no additional references to detector types on page 29.