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September 12, 2003

RE: ATCB Comments QYPPWA0701 dated September 12, 2003

After reviewing your comments, please find our responses below.

1) The modified confidentiality letter referenced in the response does not appear to have been provided. Please provide.

The confidentiality request has been uploaded – sorry for the delay.

2) The antenna description on Page 2 of 21 was changed in the revised report and not now longer applies to this device. Please correct.

The description of the access point antenna has been corrected.

3) An output level adjustment was shown in the power output results. Please confirm this setting used gives the highest output power expected for use with this device.

To the best of our knowledge, and the manufacturer's, the control software for the BlueTooth device in test mode was adjusted to give the maximum output power.

4) The information on page 11 & 15 of 21 says the device has 78 channels. Note that this type of device requires to have 79 channels minimum.

The number of channels was verified to be 79. All test data references to the number of channels have been updated to show the correct number.

5) The plots shown on page 18 & 21 of 21 show a large difference between peak and average readings. This suggests that the transmitter output was in a pulse mode of operation vs. CW or 100% TX signal. Typically if the device is not in a CW or 100% TX duty cycle, a 10 Hz VBW is not considered acceptable for the measurements. Note that 1/(TX on Time) must be > VBW setting to be considered valid. This would likely require a VBW of > 2 kHz for this device. It appears that average measurements may not have been properly taken. However, given that this is a bluetooth based device, we can assume that bluetooth operation theory applies. Bluetooth has different packet lengths that may be used in various modes. The theory of operation for Bluetooth states that their may be 1, 3, or 5 slots used per transmit depending on the mode of operation. For a DH1 packet the TX is on 0.625 us per 49 mS per channel, while for a DH5 packet the TX is on 0.625 * 5 per 247 ms per channel. These duty cycles equal the following: 20 log (.625/49) = 37.9 dB or 20 log (3.125/100) = -30 dB. All are greater than the 20 dB difference between the peak and average limits. Therefore if peak measurements meet, it is assumed that all average measurements will as well since the difference in limits is 20 dB, while the duty cycle correction exceeds this. It may be best to remove all average measurements and simply add a note to the fact.

> *The difference between peak and average readings for the fundamental signal show only a minimal difference so the radiated data should not have required the use of an average bandwidth greater than 10Hz to avoid pulse desensitization.*
>
> *The test data has been updated to remove the average band-edge plots and the band edge levels for radiated spurious emissions were re-calculated based on the peak band-edge delta. The calculated levels agree with the original measured levels, confirming that the device was, in fact, transmitting continuously during the radiated emissions tests.*

The following files have been uploaded to the ATCB website to support these responses:

- Response #2.doc
- R52139 (Revision 2).pdf

If you have further questions, please do not hesitate to contact me via doc@elliottlabs.com.

Regards,

Mark Briggs