To: Joe Dichoso
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FCC Application Processing Branch

From: David Redman – Sensors & Software Inc.
and Tri M. Luu – Ultratech Engineering Labs Inc.

Re: FCC ID QJQ-PE-PRO-TLF

Applicant: Sensors & Software Inc.
Correspondence Reference Number: 26929
731 Confirmation Number: EA478068

1) **What is the pulse width of the device?**

The pulse width depends on the attached antenna as outlined in the table below:

Antenna	Pulse Width (ns)
50 MHz	60
100 Mhz	33
200 Mhz	18

*** This information was added to the revised test report uploaded to FCC.

2) **Internal photo's are not confidential because when the unit is sold, anyone can open the device. Please revise the confidential letter and resubmit.**

We would like some clarification on this issue. It is not clear to us why we cannot claim this since our competitors (see FCC IDs: QLAMID, QLA500MHZ, QLA100MHZ, QLA250MHZ, QLA800MHZ)have requested and obtained approval to keep their internal photos confidential. We also claim as they have that: "Specifically this material contains information relating to circuit function and system design that could be of benefit for competitors. This material contains confidential information and trade secrets that Mala Geosciene does not customarily release to the public and which is otherwise not generally available to the public."

3) **Please provide photo's of all antennas, a clearer and larger photo of the component side of the transmitter board.**

Photos of the antennas were already submitted to FCC with the external photos of the transmitter unit. I will send another one, just in case you not have them. I also re-submit the clearer internal photos of the transmitter board.

4) **Please provide internal and external photo's of the control unit.**

The external and internal photos of the console unit have been uploaded to FCC E-filing per your request.

5) **It appears that the 50, 100 and 200 MHz antennas are interchangeable and the antenna is not permanent as stated. How does the device comply with 15.203.**

The antenna connection consists of 2 pins and a unique mechanical structure that allows the attachment of the transmitter electronics to the antenna. Like any connector, there is an electrical component (the 2 pins) and a mechanical component (the shell and support structure). The uniqueness of the support structure ensures incompatibility with antennas other than those designed for this system. By its nature the system is required to be moved over the ground with all the attendant stresses on the antenna and attached electronics. Operation of the system without this coupling mechanism is impractical. See Figures 1 and 2 that show the connector on the bottom of the transmitter and on the antenna respectively.

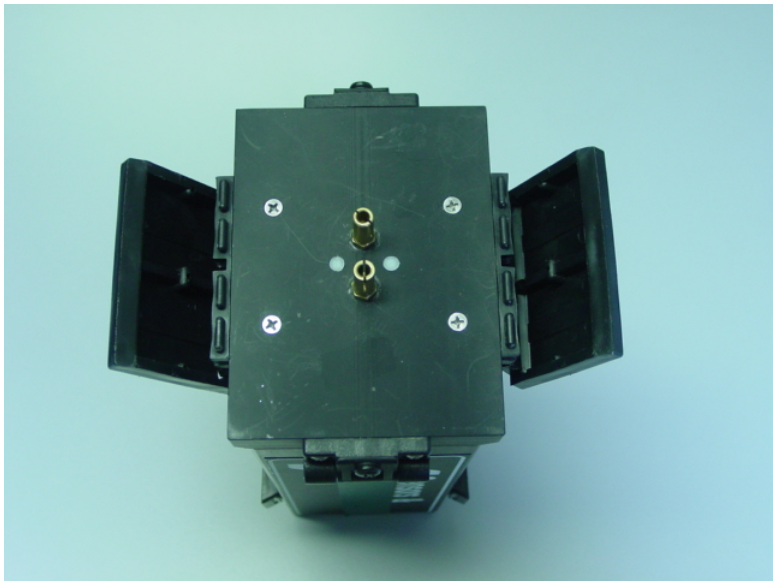

Figure 1: View of connector on bottom of transmitter.

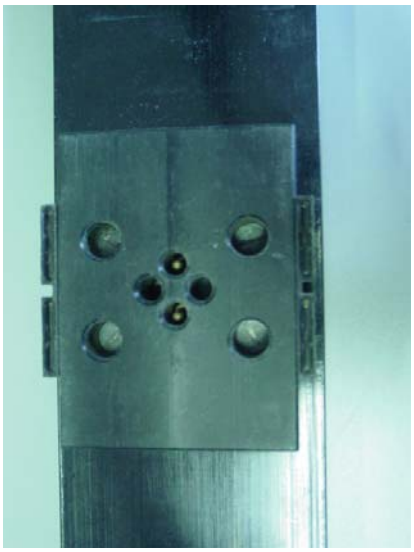

Figure 2: View of connector on antenna.

6) **What antenna was used below 30 MHz?**

The Emco Active Loop Antenna, Model 6507, S/N: 8906-1167, Freq. Range: 1 kHz to 30 MHz were used for measurement of frequencies below 30 MHz.

7) **The data for the bandwidth test does not agree with the QP data below 960 MHz. For instance, the bandwidth test data shows peaks at 270 MHz for the 200 MHz antenna, a peak at 156 MHz for the 100 MHz antenna and a peak at 42 MHz for the 50 MHz antenna. Please provide QP data at these peaks.**

Please refer to the revised test report for any additional tests or explanation regarding to your questions.

Please note that it is not practical to relate the peak frequency in a large frequency span (970 MHz) for 10 dB BW measurement and the peak frequency in a small frequency (0Hz) span for E-field QP peak measurement since the frequency in a large frequency using the spectrum analyzer will show the inaccuracy. For example, the 30-1000 MHz span for 10 dB BW measurement, it showed the peak at 270.1 MHz, but in the zoom-in frequency span such as 2 MHz for peak measurement or 0Hz for QP measurement, the actual frequency of the peak is 288.12 MHz.

8) **The bandwidth is determined by the furthest 10 dB point from the peak. The QP data shows that, for the 200 MHz antenna, there is a significant emission at 553 MHz that is almost as high as the emission at 288 MHz. See page 21. Please explain/correct accordingly for all antennas.**

There was an error by observing the plots for 10 dB BW, please review the revised test report for correction. As a result, the Emission Designations will be changed to “660MN0N” for 200 MHz antenna, “612MN0N” for 100 MHz antenna and “733MN0N” fro 50 MHz antenna.

Please correct the emission designation in 731 form.

9) **Except for measuring the peak level(when applicable), all measurements above 960 MHz uses a RMS detector. Do not use an average detector as indicated on pages 21, 23 and 25 of your report. Please re-measure and correct the report.**

Please find the coorections in revised test report.

10) **You requested deferral of the filing. After the above is resolved, the filing will be deferred but please notify EAB a few days before the deferral date to confirm.**

We agree.