



August 26, 2014

Travil Thul  
Office of Engineering and Technology  
Federal Communications Commission  
Re: FCC ID: ZEH0414  
Applicant: PLUS Location Systems USA, LLC  
Correspondence Reference Number: 46280  
Form 731 Confirmation Number: EA470317

Mr. Thul,

Please find additional information in response to each of the discrepancies identified in your email on 8/13/2014.

**1) The frequency range listed within the technical specification on form 731 shows a low frequency of 6.9274 MHz and a high frequency of 7.7567 MHz. It is understood that these values should be 6927.4 MHz and 7756.7 MHz (i.e. 6.9 GHz and 7.7 GHz). Please verify and update as appropriate.**

I attempted to correct the values to indicate a low frequency of 6927.4 MHz and a high frequency of 7756.7 MHz. However the website would not allow me to make any changes to form 731 once it has been submitted.

**2) The test report and user manual indicates compliance with 15.519(3)(c), 15.519(3)(d), and 15.519(3)(b). It is understood that compliance with 15.519(c), 15.519(d), and 15.519(b) was intended. Please verify and update as appropriate.**

The test report and user manual have been corrected to indicate compliance with 15.519(c), 15.519(d), and 15.519(b).

**3) Section 3 of the EMC test report indicates emission measurements below 1 GHz, applying limits from what is understood to be 15.519(c) (and 15.209 by reference). However, these limits are bound to a high frequency of 960 MHz. Due to variations in limits and measurement techniques above and below 960 MHz, please ensure that the EMC report does not present measurements which are not applicable (i.e. between 960 MHz and 1 GHz using procedures intended for use below 960 MHz).**

**4) Per 15.519(a)(1), ‘a UWB device operating under the provisions of this section shall transmit only when it is sending information to an associated receiver. The UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that is transmission is being received’. Please submit supporting documentation describing how this requirement is fulfilled.**

The UWB transmitter operates as part of a system in which it sends short duration UWB packets to one or more receivers. The transmitter’s cycle of operation is as follows: 1) the transmitter’s microcontroller begins in a non-transmitting sleep state, 2) the transmitter transitions to an active state, in which it sends a short UWB packet of fixed duration of 101 microseconds, 3) the transmitter microcontroller ceases the transmission and returns to a sleep state.

An oscilloscope screen capture of the 101 microsecond packet is shown in the figure below.

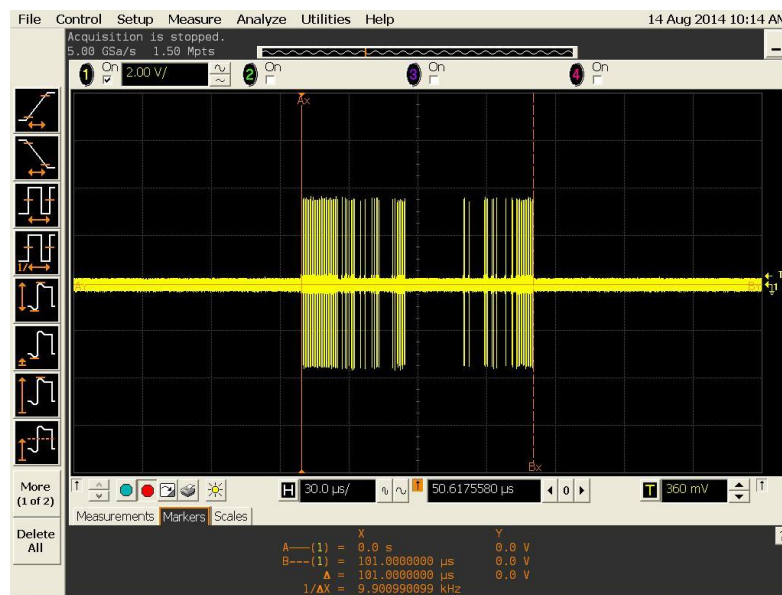


Figure 2. UWB Packet. Each line is a 2 nanosecond pulse.

Per the 15.519(a)(1) requirement, the UWB transmitter is allowed to operate up to 10 seconds after which it must cease its transmission if it has not received an acknowledgement from the associated receiver. As demonstrated, the UWB transmitter will automatically cease its transmission after only 101 microseconds, meeting the required behavior in much less than the allowed 10 seconds.

5) Per 15.521(a) and consistent with Draft KDB Publication 821551 DR01, specific restrictions of usage should be reflected within the grant notes. Accordingly, grant notes reflecting that this EUT may not be employed for the operation of toys, operated onboard an aircraft, a ship, or a satellite have been added. No further action is required.

6) It is understood that this grant of authorization is intended to be as a Single Modular transmitter. As such, the pertinent exhibits required under Part I of KDB Publication 996369 D01 must be submitted. A link to this document is below.

KDB Publication 996369 D01:

<http://appsint.fcc.gov/kdb/GetAttachment.html?id=clpbiLbTdDomywhbMgK6ng%3D%3D>

Please reference attachment "Transmitter Module Equipment Authorization.pdf" for supporting documentation.

7) Consistent with #6, the 15.212 itemized list information appears to be included with the user manual. This information must be submitted as part of requirements outlined in KDB Publication 996369 D01.

The user manual has been updated to be consistent with the attachment referenced above. In the original revision (Rev A), the user manual referenced many requirements that are specific to Single Modular Transmitters. The updated manual clarifies that the module is a Single Limited Modular Transmitter, and addresses the appropriate requirements.

Sincerely,

Keven Trach

Vice President of Projects



6767 Old Madison Pike

Suite 310

Huntsville, AL 35806

P: [+1 256-217-4072](tel:+12562174072)

M: [+1 256-428-6388](tel:+12564286388)

[www.pluslocation.com](http://www.pluslocation.com)