**Trailer Lights Tester**

**Release #2 technical requirements**

Document version: 2

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| HW Revision | FW version | Mobile app rev. |
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Main device purpose is to give new user quick reference whether all is good with his unit or not: check lights, brakes (hydraulic/electrical), doors/windows/roof/stairs position.

**TLT Release #2 should provide:**

* Hydraulic brakes pressure measurement
* Electric brakes voltage 12V & current measurement max 6A when fully braking – Calibration by driver
* Accelerometer data handling to determine braking event
* RTC for time & date features
* Brakes data storing
* ZigBee functionality to get windows/doors/roof position

**Preliminary Block diagram**



**Requirements description:**

1. Hydraulic brakes pressure range: 0..800 psi.

2. Electric brakes current range: 0..6 A.

3. Accelerometer should be used only for actual braking event determination or, optionally, hit event. No need to analyze driving style, movement direction etc.

4. RTC should be set once smartphone connected, and synchronized on every next connection.

5. BT connection should be protected by pin-code (default 0000, user can set own, reset by button press) or by short-time advertising enabling with button press.

6. OTA update feature should be done from smartphone application.

7. Calibration procedure should be provided for both hydraulic & electrical brakes.

8. Brakes type (hydraulic/electric) should be set in the application.

Brake events should be stored in the non-volatile memory. Number of records – no less than 1000 events, record format - <time><date><braking force>

Application should be able to download all records from TLT, show quick statistics and share by e-mail.

9. Device should be able to collect data from the number of ZigBee devices (doors, windows, roof position sensors). Full device list to be determined later.

10. TLT should be able to light lamps in case of external battery connected. No internal battery is provided.