

Trax (WEM-200) series & Pilot parts Assembly update and FCC assessment

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Related reports / References

[1]

[2]

[3]

[4]

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Revision index	Revision content	Release Date
Rev1.0	Initial release	/06/2021
Rev 2.0	Antenna gain comparison added between old and and new design Document title changed	27/10/2021
Rev 3.0	Document is also valid for pilot parts -> added in the change letter update	07/12/2021
Rev 4.0	Product Pictures added	09/02/2022

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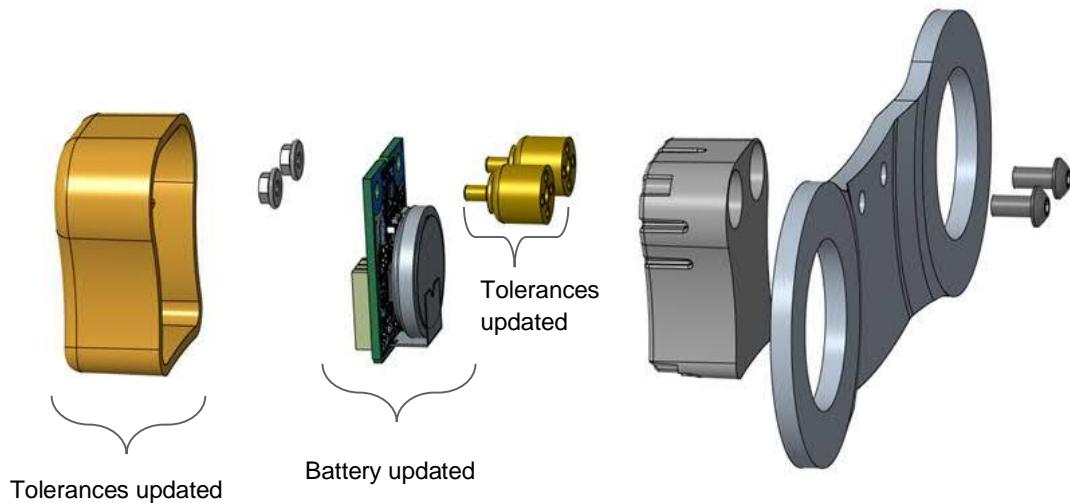
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1 Introduction

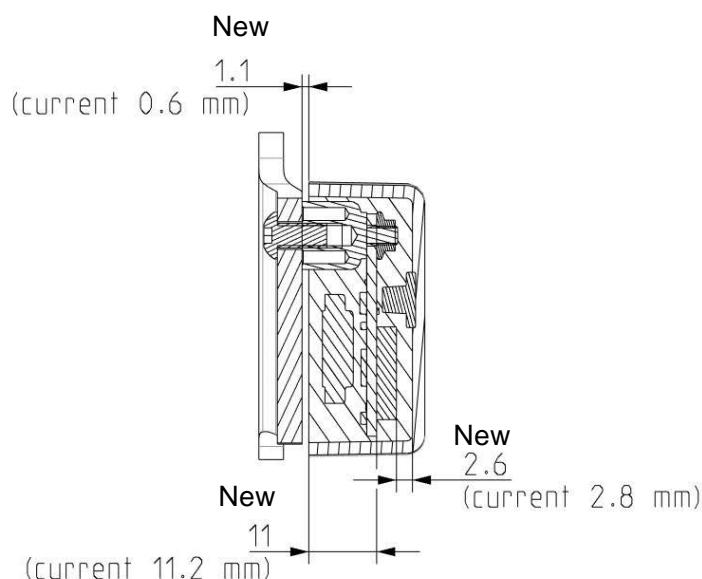
Trax sensor (WEM-200) has been validated in 2019 at 7layers, Series production are planned for this summer 2021. During this industrialization phase we need to optimize some dimensions, to ensure better mechanical assembly, and change the battery reference for the former one is obsolete.

This request is also valid for pilot parts that have the same changes except for the algorithm.
none of the RF functions has been changed, as well as the PCB assembly.

2 Product overview

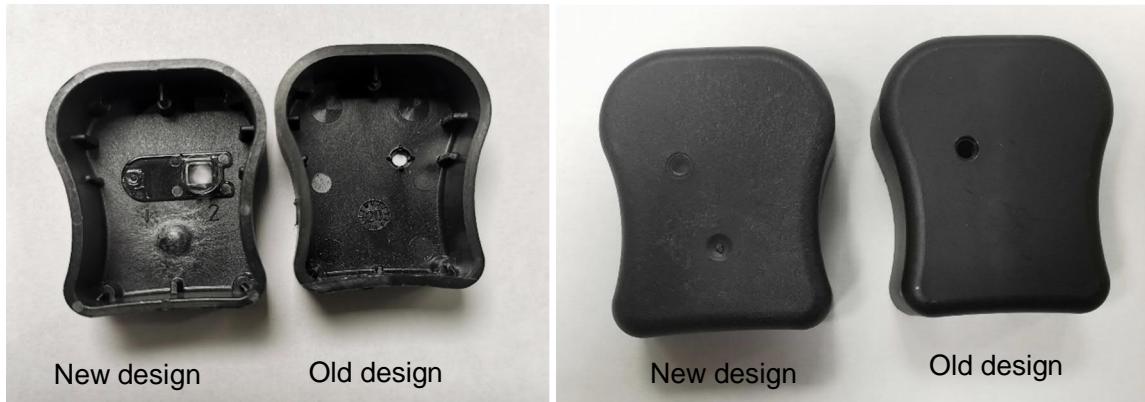


3 Mechanical assembly update



New design



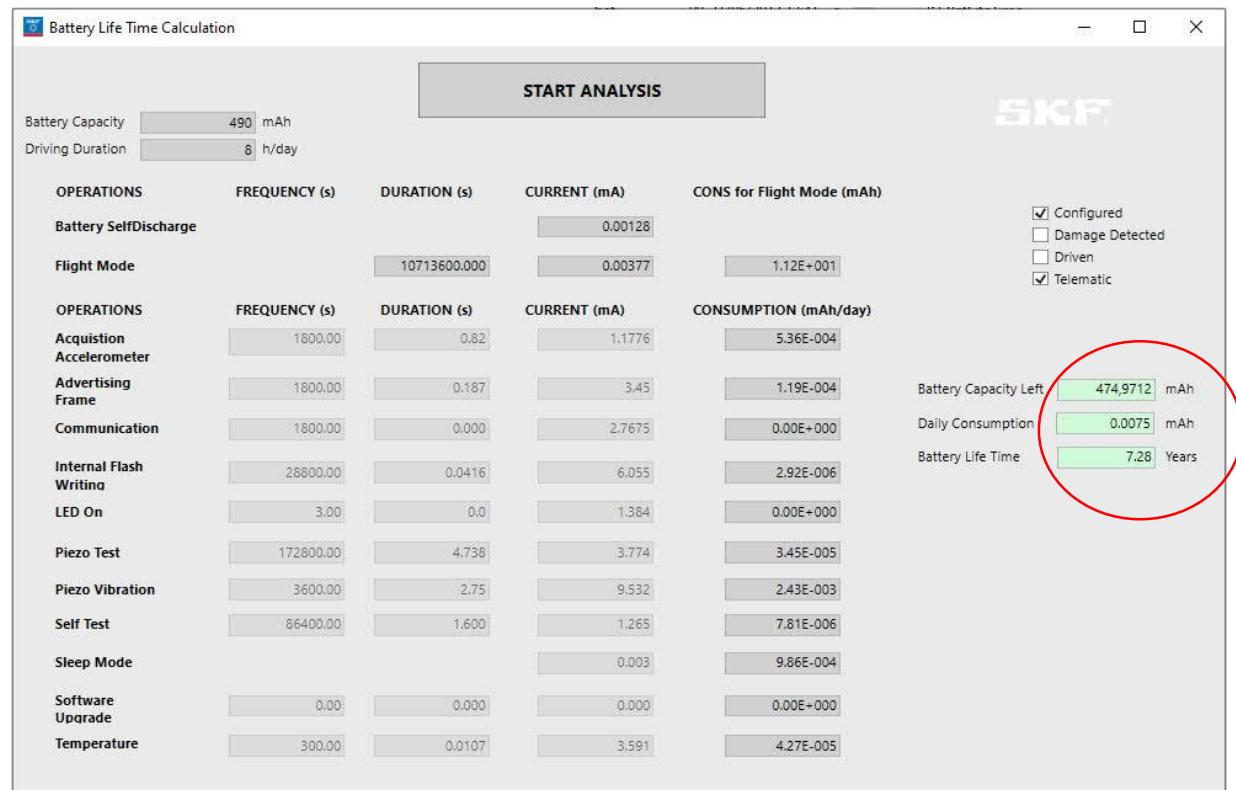


4 Battery replacement

4.1 RENATA Battery

The current battery is RENATA CR2450HTRH-LF:

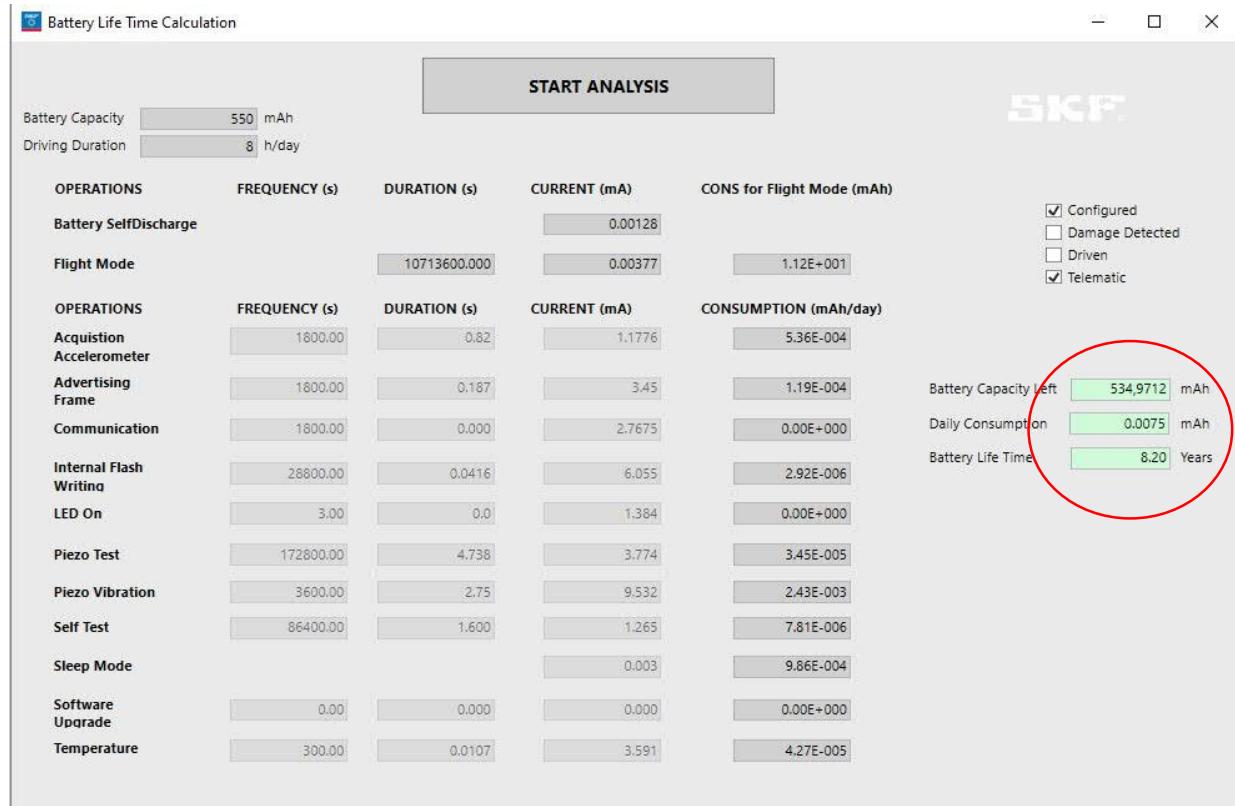
- 3V, 490mAh
- Operational temperature -40°_125°C
- Weight 6.3g



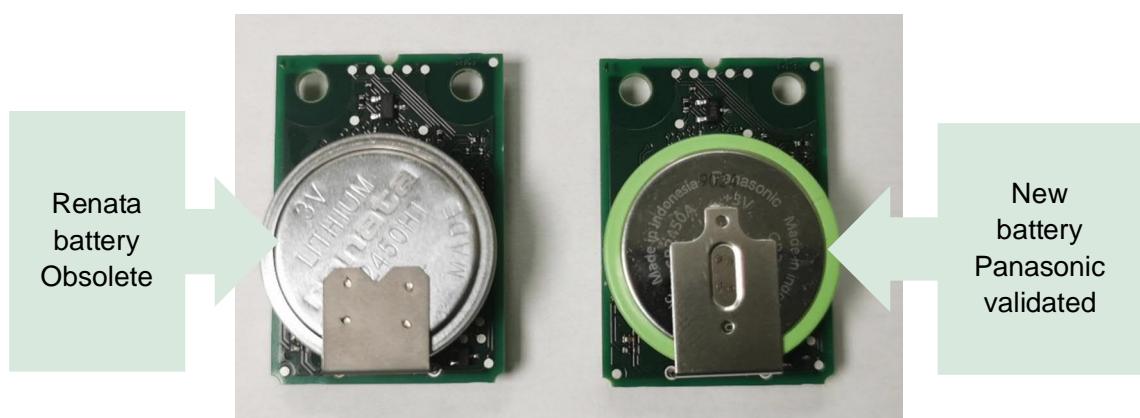
4.2 PANASONIC Battery

The new battery is PANASONIC CR2540A/GBN

- 3V, 550mAh
- Operational T° -40°C_125°C
- Weight 6.7g

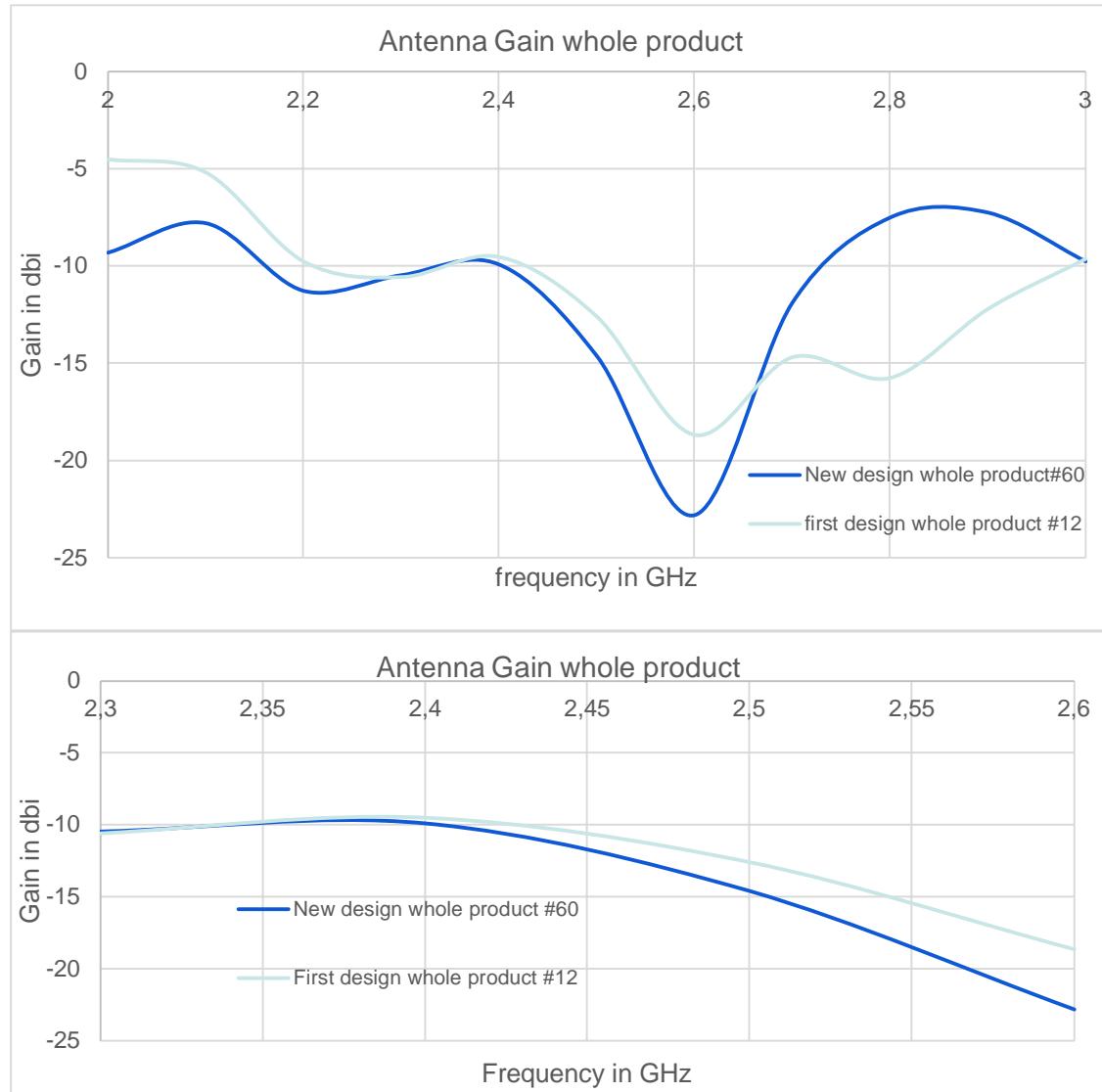


The impact of the battery replacement is on the product lifetime as shown in the table above the battery lifetime evolves from 7.28 years to 8.2 years and this is the only impact on the whole product.



5 Antenna Gain

The gain of the antenna on the whole product has been measured for comparison between the old and the new design.



Conclusion

The measurement of the antenna gain on old and new design are similar within the band 2.4Ghz and 2.485Ghz. No difference seen so far due to mechanical changes

6 Suggested tests update

According to the modifications only radiated performances could be modified

- frequency resonance shift on the antenna due to gap modification between antenna and plastic case
- antenna gain due to battery change (RF coupling) and to gap modification between antenna and plastic case

for these reasons we suggest redoing all radiated tests done on report MDF_SKF_1903_FCC01 as follow

- Transmitter spurious radiated emission (FCC part 15 Subpart C according to ANSI C63.10)
- Band Edge Radiated (FCC part 15 Subpart C according to ANSI C63.10)