



October 27, 2010

California Energy Commission  
Dockets Office, MS-4  
Re: Docket no. 09-AAER-2  
1516 Ninth Street  
Sacramento, CA 95814-5512

**DOCKET**

**09-AAER-2**

DATE OCT 27 2010

RECD. OCT 27 2010

To: California Energy Commission:

RE: Proposed Title 20 California Efficiency Standards for Battery Charger Systems CASE Report Version 2.2.2 (Docket no. 09-AAER-2)

Makita U.S.A., Inc., which is based in California, would like the California Energy Commission to consider the following comments to the proposed BC requirements provided in the CASE initiative For PY2010 Title 20 Standards Development version 2.2.2, modified October 1, 2010.

**General Comments:**

Makita has been a global power tool manufacturer and distributor for over 50 years and is known as a global leader in battery power tools. Makita has more than forty overseas subsidiaries in over thirty countries with factories in seven countries including the United States.

Makita has always been concerned with using technology to develop more energy efficient chargers and was the first power tool company to have a battery charger approved by Energy Star. In fact at this time all of Makita's battery charger are Energy Star approved showing our overall commitment to building more energy efficient chargers.

**Main Concerns and Comments:**

- The efficiency standards proposed for Active, Maintenance and No Battery Modes are set at a very severe level for power tool battery chargers, this is probably because of the effort in trying to make one set of limits fit all product categories.

For the Maintenance and No Battery Modes the graph provided shows a proposed standard of max. 0.5 W and 0.3 W respectively. These numbers are on a straight line and do not follow the trend of all the data provided on the graph. It is not clear why this data would be collected and graphed yet the trend line was not established which would be considered a standard way to develop limits within the data provided. In fact it appears that the data supplied on this chart was ignored for the most part and a level was established on some other bases. This methodology of setting limits which are not directly related to the data provided would tend to result in being very severe for some product categories while having minimal impact for other product categories.

For the power tool battery charger category it is clear that these limits are very severe in the range of 10 to 60 Whs. For the No Battery Mode the level set would eliminate most Ni-Cd battery chemistries. For the Maintenance Mode the only battery chemistry that was found to be acceptable was Li-ion and even many of those would be found to be unacceptable. These severe limits proposed would result in

to the fact that all other chemistries for power tools such as Ni-Cd, Ni-Mh and Lead Acid will be eliminated.

If this was to be a voluntary standard these severe levels resulting in the complete elimination of battery chemistries may be considered acceptable however, this proposal will become law and will eliminate proven economical battery chemistries which will impact the consumer of the state by forcing them to purchase the newest and most expensive chemistries on products that they may use only a few times a year. The payback on this type of chemistry change over would be expected to be too long and not very beneficial to the consumer for the small energy saving that may be attained.

- In preliminary testing it has been demonstrated that most of our Energy Star approved chargers, representing a majority of our product line, will fail the limits set forth in this latest proposal. This is very troubling since it is known that the Energy Star products are considered to be in the top 20% of high efficiency performers in any particular product category. The testing has indicated that these Energy Star approved chargers will fail the Active, Maintenance and the No Battery modes.

This information points to the fact that the energy efficient levels that have been chosen in the proposal are too severe and do not properly represent the power tool battery charger category. It would appear that the CEC would be concerned with the fact that Energy Star approved products will not pass, yet the state of California supports ES by encouraging the people to purchase ES products with cash rebates. In addition the minimal Wh gain by making the changes to the charger designs do not seem to have the payback benefits the CEC is looking for when making this a requirement. In some cases a minimum of 0.017 Watt is the difference between passing or failing the limits proposed however, the wattage savings in these cases would be minimal and should not require the redesign of a product line.

- The Power Factor currently proposed for any charger that draws 1 amp rms or more will need to be 0.9 or better. It was also stated in Appendix B that this requirement would only affect 2% of the overall chargers in the field. However, preliminary tests have shown that at least 90% of our cordless power tool product line uses chargers that draw at least 1 amp and therefore the impact of this .90 PF is substantial. This requirement will result in redesign of a substantial percentage of our charger line.

In addition the actual energy gain that might be achieved with the change in the PF performance of the chargers is suspect and may be much lower than predicted because of the many assumptions that were made in the study provided in Appendix B.

For example the assumption that the chargers would be used 3 hours per day every day of the year makes the calculation suspect when addressing the power tool battery charger category. This would mean that for one of our 15minute chargers, they would be charging 12 batteries per day. This high number of batteries being charged by a single charger would clearly not be representative of normal use in a single day nor would it be accurate that this type of charging would occur every day of the year.

Another concern in the predicted saving due to better PF performance on chargers is in the level of uncertainty indicated in what was stated as an "educated guess". In general the predicted total energy usage of chargers in the state of California is 3000 GWh/yr. Also stated is a possible savings of 1279 GWh/yr. with the higher power factor provided on all chargers. However, when determining the uncertainty of all these assumptions used in these calculations, we get an educated guess that the uncertainty may range between 500 – 2000 GWh/yr. This wide range of uncertainty reflects the fact that the confidence in the predictions is very low.

Manufacturers of the power tool battery charger category should not be forced to make PF changes in product lines unless the benefit to the user can be clearly identified and that the payback to the end user can be properly quantified. At this time it is recommended that the PF element for the power tool category be reevaluated or dropped from this proposal until accurate calculations can be developed for this category power tool battery chargers.

- The fact that the agenda for the meeting was only available the day of the meeting and the documents that the CEC was looking for comments on were not available until part way into the meeting is unacceptable. This late provision of information left the stakeholders scrambling trying to understand and comment on a tremendous amount of information in a very short period of time. It is also believed that had the stakeholders been made aware of the breadth of the meeting with proper notification there would have been more attendees present and the discussion would have been much more fruitful.

Due to the short time that the stakeholders have had to respond to the information provided at this meeting a complete review and understanding of the proposal's impacts to the power tool battery charger category could not be provided.

- The anticipated effective date of early 2012 for this proposal is not realistic since it affects so many product lines. The redesign of the chargers and possibly having to make new molds and the actual manufacturing of the chargers would take at least 9 to 12 months if everything went perfectly. This amount of time to develop new charger designs alone demonstrates that the very short timeline proposed is not practical.

In addition these chargers will need to undergo third party approval testing with agencies such as UL or CSA after they have been built. Based on all the products that will need to undergo testing due to these proposed requirements it would be very unlikely either agency would have the resources to process this much work in such a short time period.

In general when UL conducts file reviews which require redesign and testing of product lines to meet new safety requirements they allow for a period of 3 years on average so that this work can be processed properly. These type of phase in periods are used all the time on requirements that effect safety in the products that they evaluate. If 3 years has been good for these NRTL approve agencies in dealing with safety issues it appears that the same time period should apply to energy efficiency requirements.

It is recommended that the effective date of this proposal should be 3 years after the published date of the requirements.

## **In Conclusion**

For powered tool battery chargers in this proposal there are major concerns in the fact that the energy efficiency levels selected are unrealistic, that preliminary testing is demonstrating many Energy Star approved chargers will not pass the proposed limits, that the proposed power factor of 0.09 would eliminate a very large percentage of chargers on the market with the actual energy gains being very unclear and that an unreasonable effective date is being proposed.

Due to all of the issues above it is recommend that the CEC consider breaking out the category for power tool battery chargers from this proposal and developing a separate category with efficiency limits that would more properly be representative of these type of products and their usages. Another option would be to remove this product category from this proposal completely knowing that the DOE will be providing power tool battery chargers requirements that are currently projected to be established by 2013.

Your time and effort in considering our comments to the proposed battery charger CASE Report Version 2.2.2 dated October 1, 2020 is very much appreciated.

Sincerely,

Stan Rodrigues  
Manager, Regulatory & Compliance Dept.  
Makita USA, Inc.