

# **Official statement about the pitch control characteristics on SL-1210MK7 before and after the redesign**

This document has been made in order to explain and inform about the pitch fader characteristics of the SL-1210MK7 in its original version from June 2019 and after a redesign which has been performed and got effective with all SL-1210MK7 units delivered from July 2020.

## **History**

Around spring of 2020, an SL-1210MK7 user from the UK uploaded a movie YouTube with comments that there is a 'dead spot' of the pitch fader effect between  $\pm 7\text{-}8\%$ . In his posting, he also requested a reply by Technics which later has been given by PUK in accordance with PAPEU after investigation with Technics JP team.

Following to this YouTube posting, many questions and inquiries for a solution turned up by dealer and/or end users from the US, Europe and Australia.

As this web content was spread widely from outside of the UK, there also was some negative impact on the sales of SL-1210MK7 in some countries.

After this YouTube posting has been spread and inquiries turned up in some countries of Europe, PAPEU have been asked to check this issue with the Technics team from JP.

## **The issue in short**

Up to the pitch fader position of  $\pm 6\%$ , the pitch fader function can be seen as almost perfectly linear. However, between  $\pm 6\%$  and  $\pm 7\%$ , the pitch fader is leaving its linear behavior; at the position of  $\pm 7\%$ , the actual speed derivation has already reached  $\pm 8\%$ . So effectively, there is a "dead spot" between  $\pm 7\%$  and  $\pm 8\%$ .

## **The explanation for the issue from JP engineering team**

For the pitch fader of the SL-1210MK7, a sliding resistor with a resistance range from  $0\text{k}\Omega$  to  $10\text{k}\Omega$  is applied to pitch from 0 to  $\pm 8\%$  in 1024 digital blocks. The slide volume therefore is on analog base and the resistance value of the sliding resistor is converted to digital for feeding a digital control circuit.

Since the resistance of such sliding resistor has a variability due to typical device tolerance, the medium position of such slider would ideally mean  $5k\Omega$ , however due to the mentioned tolerances it can also derive, so in practice the medium position can derive from 0%. The supplier of the sliding resistor ensures 10% variation which is usual when keeping the parts cost in a tolerable range.

To solve this tolerance issue, the calibration of the resistor in combination with the digital control circuit is performed via a special software to adjust  $5k\Omega$  (which is the medium mechanical position) to 0%. However, only 0% adjustment is not enough because the pitch might not reach up to  $\pm 8\%$  by the variation correction at 0%. Therefore, an adjustment of rather reaching 8% at the position of 7.5% needs to be done in order to guarantee  $\pm 8\%$  pitch control at the position of 7.5% - 8%.

But such sliding resistor has another issue. The resistance characteristics are not always linear, especially around both ends. Typically, the characteristics begin to lean around the 6%-7% pitch position. So by the combination of this non-linearity issue and the 8% adjustment at the actual slider position of 7.5%, the dead zone expands to 7-8% at most units out of the production.

This design however will ensure reaching  $\pm 8\%$  speed variation but on the expense of a non-linearity between  $\pm 6\%$  and  $\pm 8\%$ .

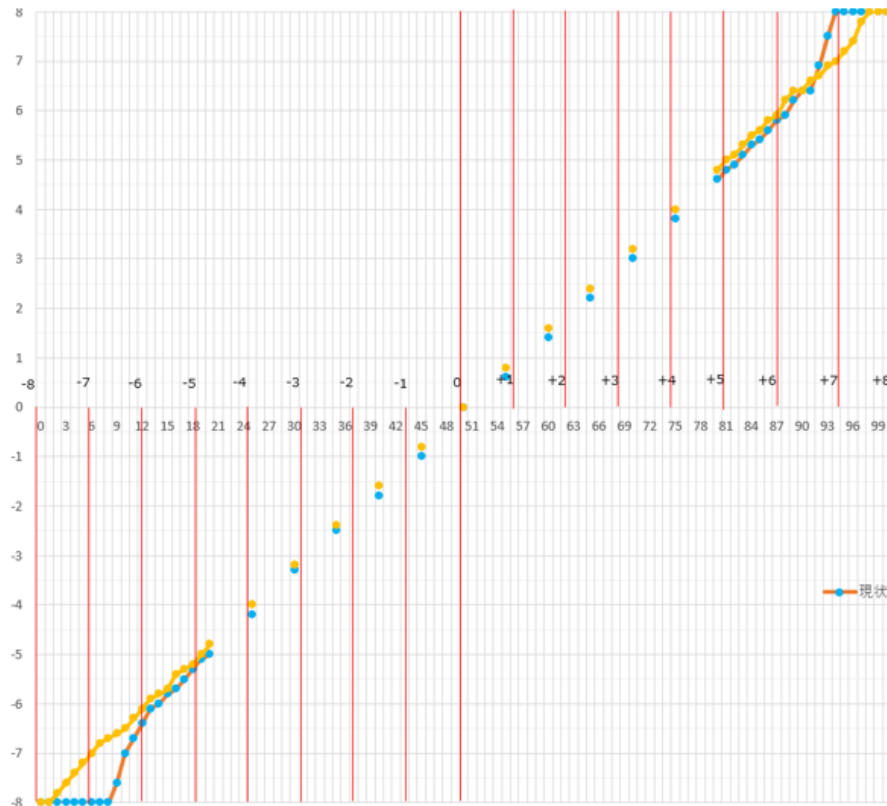
### **The effect of this pitch characteristics tuning on the DJ's work**

As already said, the pitch fader design as formerly described ensures a fully linear behavior up to  $\pm 6\%$  pitch position which is said to be the most used pitch variation range by DJs. Between  $\pm 6\%$  and  $\pm 7\%$  the non-linear range will start which would require the DJ handle the pitch fader with slightly more sensitivity. However, as described above, the Technics engineers can ensure by this layout that  $\pm 8\%$  speed variation can be reached for sure, even knowing there is a “dead spot” between  $\pm 7\%$ -8%.

## The follow-up

Triggered by our extensive conversation about this topic with the engineers of the SL-1210MK7, even more as the described issue negatively influenced the SL-1210MK7 business in some countries, the engineering team however felt their obligation to do more deep research on this issue with the target of reaching an improvement by better, meaning more precise pitch fader characteristics. The result of this research has been presented during the early summer of 2020, and the redesign got effective with the SL-1210MK7 units delivered from factory to Europe from July 2020.

## Technical explanation of the new pitch slider characteristics



Horizontal : Index on main unit pitch scale

Vertical : Actual Speed

Blue Plots : Former design

Yellow Plots : Updated design

Former design(Blue plots):

On the main unit, the actual speed has already reached  $\pm 8\%$  at the slider position of  $\pm 7\%$ . There is no change in speed between scale positions  $\pm 7\%$  to  $\pm 8\%$  ("Dead Spot").

Updated design(Yellow plots):

When the pitch slider on the main unit scale is set to  $\pm 7\%$ , the actual speed is almost the same  $\pm 7\%$ . Linear change characteristics best as possible have been realized.

### **Introduction strategy of the improved SL-1210MK7 lots**

The product improvement described on the former page was introduced as a “silent” change, the same way as many other manufacturers introduce product update during the running series.

We have jointly chosen this way of silent product improvements clearly as we did not want to arouse many owners of an SL-1210MK7 contact their dealer and ask for an exchange of the unit which would have meant a big traffic of handling complaints of which we felt would have been out of the dealers and service centers’ capacities. However, we were aware of the fact that the difference between the original design and the reworked design would be recognized sooner or later by users who measure their equipment professionally.

### **Can a former SL-1210MK7 be upgraded to the technical status of the redesigned product?**

Clearly no! The rework comprises modifications in both hardware and software, so it is not possible to change an older SL-1210MK7 model into the technical status of an improved one.

### **Panasonic Marketing Europe’s statement on this product update with regards to product exchange claims from customers’ side**

As mentioned before, Technics has performed the described product update within the extent of a change within the running production of a model series.

Many manufacturers of various industries worldwide, such as CE, automobiles etc., proceed as such. Especially companies with high brand reputation act in this way in order to express they are taking their clients’ product feedback serious and leverage technological research and product quality to the next level. This however will not justify any claim for product exchange of the former product version to the latest one, simply for the reason that the former product stage had characteristics which were different, but not faulty. Concretely spoken, whether an SL-1210MK7 out of the first production lot or the new , improved one from July 2020, the user of the pitch fader will be able to enjoy a pitch variation range from  $\pm 8\%$ , even if the fader characteristics linearity has been improved by the redesign. So, any user of both the original AND the redesigned version of SL-1210MK7 will be fully able to use the pitch range of  $\pm 8\%$ , with a slight difference of linearity response in the range from  $\pm 6\%$  to  $\pm 8\%$ .

We are hoping for our clients’ appreciated comprehension.

Sincerely, your Technics Team of Panasonic Marketing Europe GmbH