Adjust＋測定例 1
Adjust+ Usermanual P19-P26 要約

アジマスのセットアップ、または垂直性の確保

考察
- カートリッジの針先と音溝のコンタクト
- 図解

測定法
- アジマスの調整
- Adjust+ソフトウェア測定手順
- -2.5°（時計方向の傾き：CW）から＋2.5°（反時計方向の傾き：CCW）で測定
- 測定は、KUZMA のアナログプレイヤーで実施
  - 実施手順の動画
  - https://www.youtube.com/watch?v=y5UGd2E9s9Q

測定結果の図示例
- P24 上の図　Phase Angle
  - 横軸　HTA(Azimuth Angle)［°］(+-CW／CCW-+)
    range：-2.5° から+2.5°
  - 縦軸　Phase Angle［°］
    range：0 から 180
  - グラフ緑線　L→R
  - グラフ赤線　R→L
  - 緑線と赤線が+0.5° 付近でクロス
- P24 下の図　Crosstalk Level
  - 横軸　HTA(Azimuth Angle)［°］(?CW／CCW ?)
    range：-2.5° から+2.5°
  - 縦軸　Level［dB］
    range：-40 から-20
  - グラフ緑点線　L→R
  - グラフ赤点線　R→L
  - グラフ青点線　Mean
- 緑点線と赤点線と青点線が+0.5° 付近でクロス
- 以上から、この事例では Azimuth を+0.5° に設定することを推奨

What for?
The answer is pretty simple. Just have a look again at the first picture showing stylus geometry within the groove of the record.
Elliptic stylus (and their derivatives):
・The elliptic shape of the stylus causes that if tilt the contact area with the vinyl is not the same on both sides of the groove. This means that you have different pressure applied from the stylus to the vinyl on left and right channel. It is obvious that this fact leads to higher wear on the vinyl on the channel with lesser contact... Not only that: Much more you get much more higher amount of crosstalk, higher distortions and less trackability.
Conical stylus:
・The conical shape has an advantage over the elliptical shape. It is the fact that even if being heavily out of position contact area of both channels always is the same. This means that trackability and distortions are not that heavily depending on perfect position of the stylus. But this is the only good news. The contact area with the vinyl is far less and resolution of high frequency is heavily limited especially towards the end of the record where the engraved wavelength of high frequencies is getting shorter and the radius of the stylus is no more small compared to the length of the wave train...
・Also it is obvious that as a result out of the smaller contact area the applied force to track the information needs to be higher. This leads to higher pressure and more wear.

＊P19 の図のように、針先の形状で溝との接触状況が変わり、crosstalk, trackability および distortions に影響が出る。

Why this way?
You may ask yourself if there is no easier way to get the job done. Well, there are tips out there telling you that azimuth can be adjusted using a multimeter. Sure in some cases this might work. But only if your cartridges shows an intersection in crosstalk exactly at the phase crossing point. Let's have a look at the following series of 3 graphs:
Despite these plots are a little small we immediately can see the three curves of the phase response are nearly identical. Ok? Well, the only difference we see is that the intersection points are different in height. Left hand they

intersect at 60°, center is around 80° and right hand it is 90°. Now we look at the crosstalk plots and yes, they look completely different. Left hand we have an intersection, middle – ahm, hard to say, and right hand? Forget it... So this must have been different cartridges! No, bad news. It is always the same cartridge we measured. The only difference from one series to the next was – VTA!

So the multimeter method will never ever give you a result with the settings on the right hand side and with the settings chosen on the middle you also will only fool yourself. To give a little more information: The difference in VTA from left to right was as listed

- Left – VTA set that cartridge is level with record surface
- Middle – VTA + 3mm
- Right – VTA + 4mm

What's the conclusion out of this? It clearly shows that the multimeter technique brilliantly can misguide you and we easily could show other types of cartridges that show similar behaviour.

＊P26 三つの図は、あたかも別のカートリッジの測定のように見えるが、同じカートリッジの VTA を変えた場合の測定である。
Azimuth の測定は、VTA の影響を受けるので、VTA をきちんと調整する必要がある。