Adjustments for Telephone Hybrid channels of a D&R Airmate-USB:

Internal adjustments:
* Remove the bottom cabinet: three screws on the front panel (connectors-side), two screws on the sides and three more on the bottom side.
* Notice two adjustment potmeters (called "L" and "R") on the side of the pcb of the telco channels.
* Place the Airmate on its frontpanel edge with the faders on the lower side; an assistant may be of great help here!
* Connect a 0 dBu (775 mV) 1kHz sine wave to the Line inputs of the hybrid channel, select its 'line in' input, adjust the 'Telco Send' to maximum, the channel gain to its mid position (12 o'clock) and the channel fader to '6' (the middle of the three lines), and the Master faders full open.
* Fine-adjust the channel Gain to an output of +4 dBu (1.22 V)
* Connect the telephone line and call the channel involved; one might hear the 1 kHz tone through the telephone.
* Now, adjust the two potmeters on the Telco-channel 'in tandem' to a position with the least audiable tone through the telephone; this will be somewhere between 12 and 3 o'clock when the pcb viewed horizontal, or between 3 and 6 pcb viewed vertical as standing upright with the help of your assistant.
-> Notice that while adjusting, one can find a point where the signal is extremely low; that's exactly what we're looking for!

Repeat these steps for the other channel.
When finished, (remove the cables and) close the cabinet.

External adjustments:
-> For optimum adjustment, an oscilloscope (attached to the Master- or Monitor outputs) is needed.
* On each Telco-channel, a R- and C-balance pot is available for impedance adjustment of the local telephone equipment and telephone-lines.
* Connect a 0 dBu (775 mV) 1kHz sine wave to the Line input of another channel (ch 1 - 6) and adjust the output to +4 dBu as explained above.
* Connect a telephone line to a Telco channel, adjust the Telco Send and Gain to its mid positions (12 o'clock); select the Telephone-input.
* Call the Telco-channel and connect; one can hear the tone through the telephone and/or a separate headphone.
* Now, when moving the channel fader up and down, one will notice a (small) variation of amplitude and a small deformation of the sine wave (on the scope); if the amplitude variation is large, try a different "C"-position and adjust "R" while keeping the channel fader moving up and down.
* The goal is to find an optimum of as less of amplitude variation as possible (with the channel fader still moving up/down), with some small amplitude deformation allowed.
-> At our factory, we set "C" to '2' and adjust "R" right through a certain 'nulling'-point to find the optimum.
* Once the optimum is set, the Telco channel is ready for use.

Repeat these steps for the other channel.
With both channels properly adjusted, operating two telephones simultaneously should be possible without that gruesome howling sound.
However, when driven to extreme values, feedback sounds may appear of course...

I hope this explanation will be helpful so far, but when you need further assistance, don't hesitate to contact us.