Test method: The instrument is connected to the BLE module of the instrument through Bluetooth. The BLE module transmits digital audio to the codec (6PAIC3254IRHBRQ1) through I2S. After the DAC, the analog audio is output to the line through the single-ended line out of LOL and LOR. driver(DRV632PWR) and measure the output pin.

Both the client's products and our meters use the same measurement techniques. We hope that the instrument measurement results will be similar or even better than those of the client. The client's product is about 0.7Vrms (Figure 1).

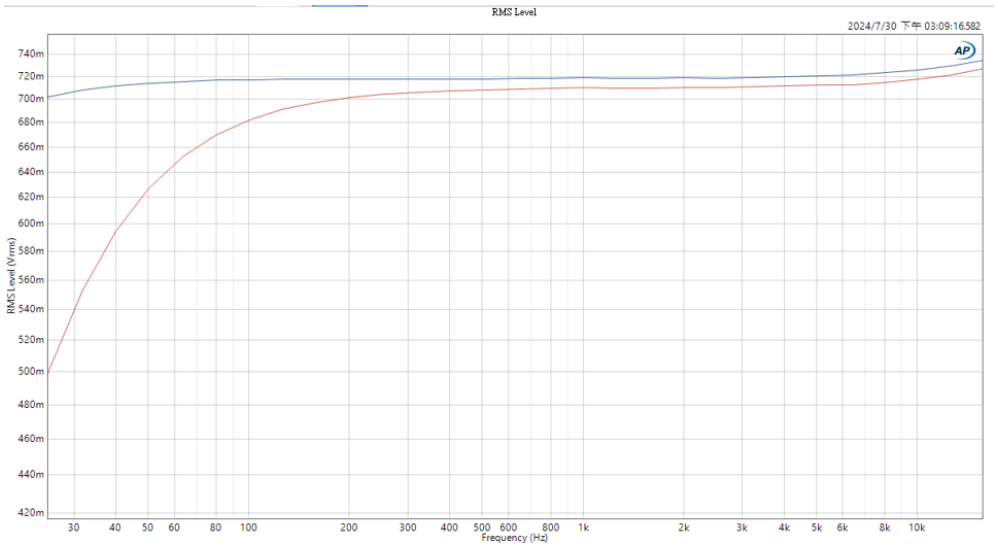


Figure 1 Client product Output RMS Level (Vrms)

Therefore, I set the DRV632 output of the instrument to be around 0.7Vrms (Figure 2) . On the left are the settings for measuring Vrms , T HD, and THD+N, and the amplification of our line driver is fixed and unadjusted (the red box in Figure 3), only use software to adjust the gain of the codec, so that the final output reaches about 0.7Vrms .

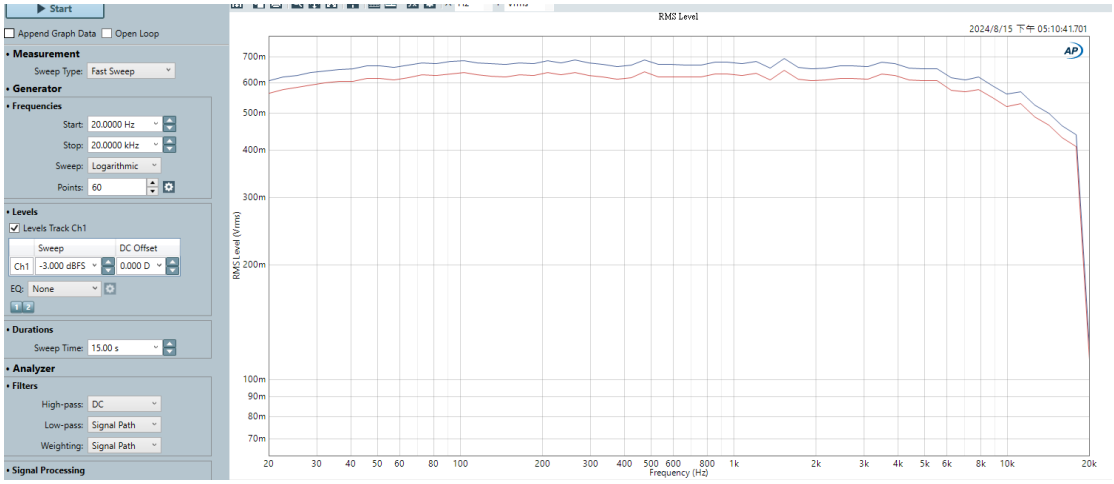


Figure 2 Output RMS Level(Vrms)

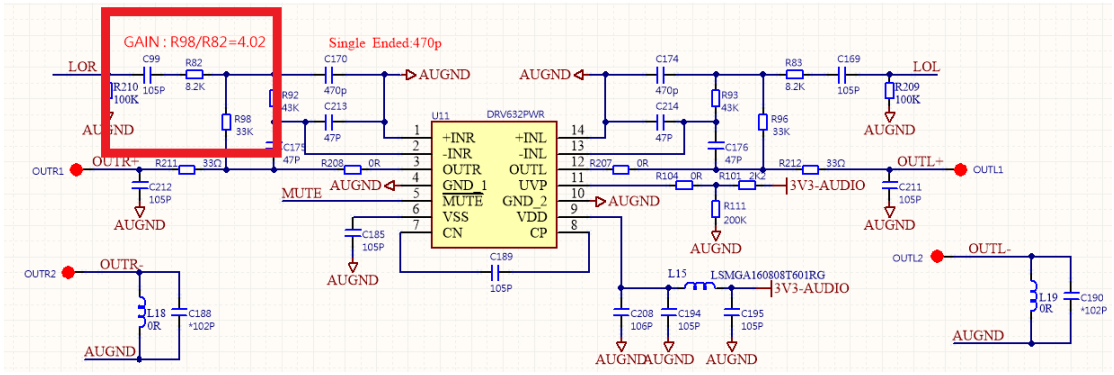


Figure 3 Line driver magnification is four times

In addition, I also sent the audio of 1KHz, Level -1dBFS and the waveform measured by the oscilloscope (Figure 4 to Figure 6). The codec output seems to have no clipping .

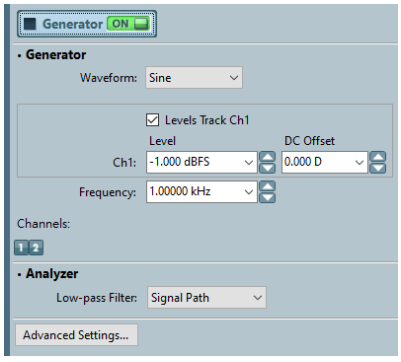


Figure 4 1KHz test settings

The waveform in Figure 5 is the waveform I measured the codec output (C193 & C197). One problem is that I found that the waveform is not a sine wave based on

0V. What will this affect?

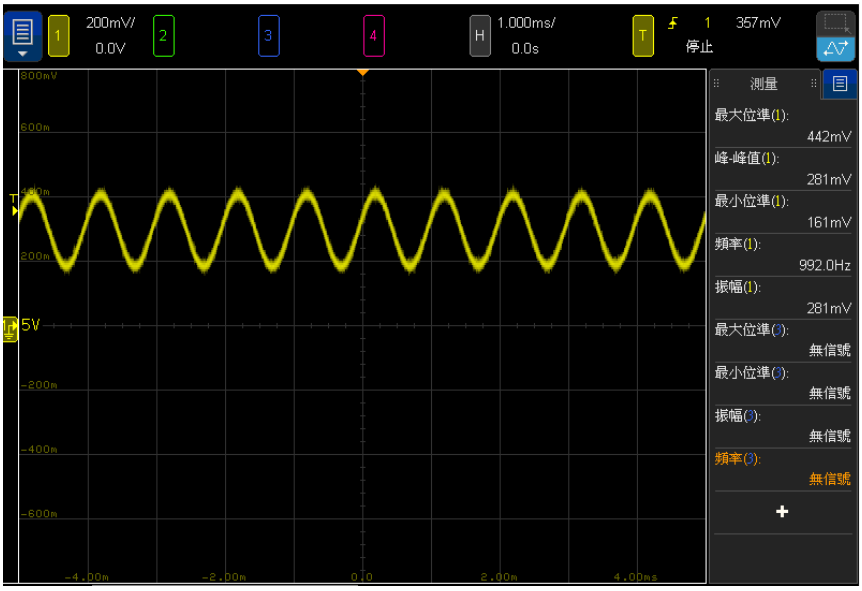


Figure 5 Codec output (after C193 & C197)

Figure 6 is the output part of the line driver. I just mentioned that the reference of the codec output waveform is about 300mV, but when it comes to the line driver output waveform, the reference is maintained at 0V (it seems to be a negative value) and the maximum level will be 1.1XV~1.2 The jump between XV and the minimum level is the same. Is this also part of the impact on THD+ N ?

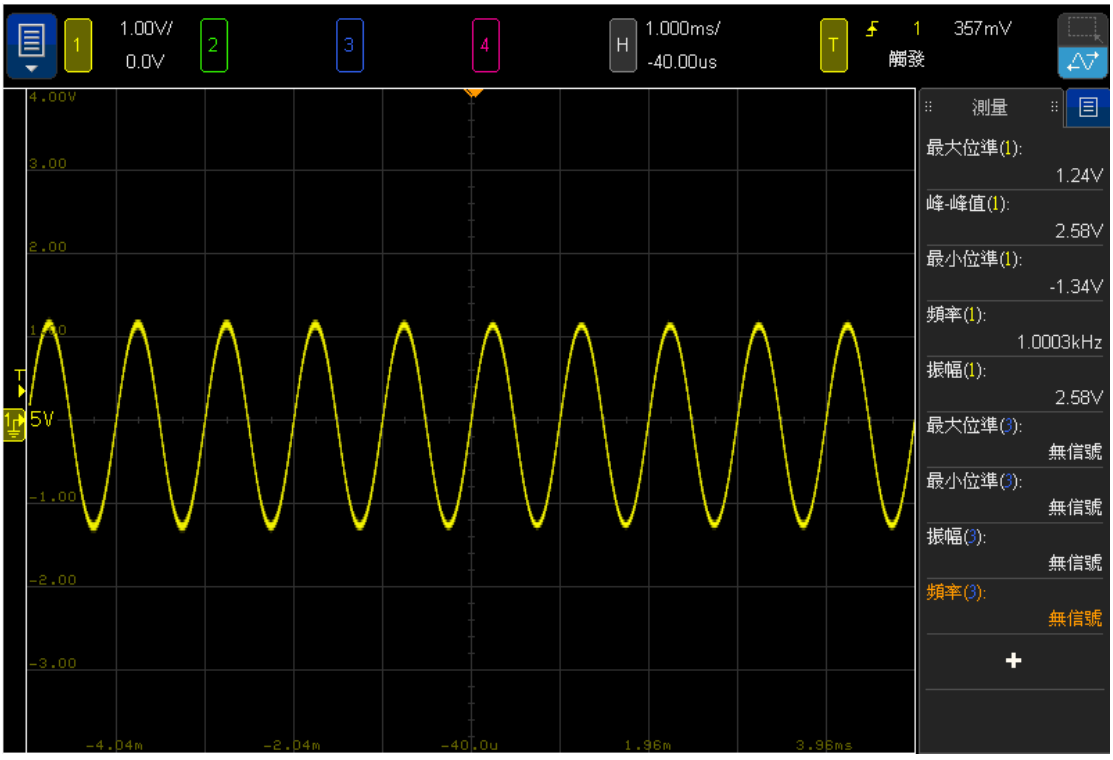
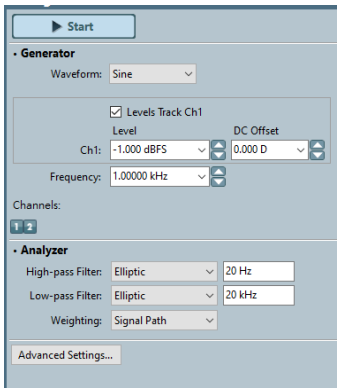
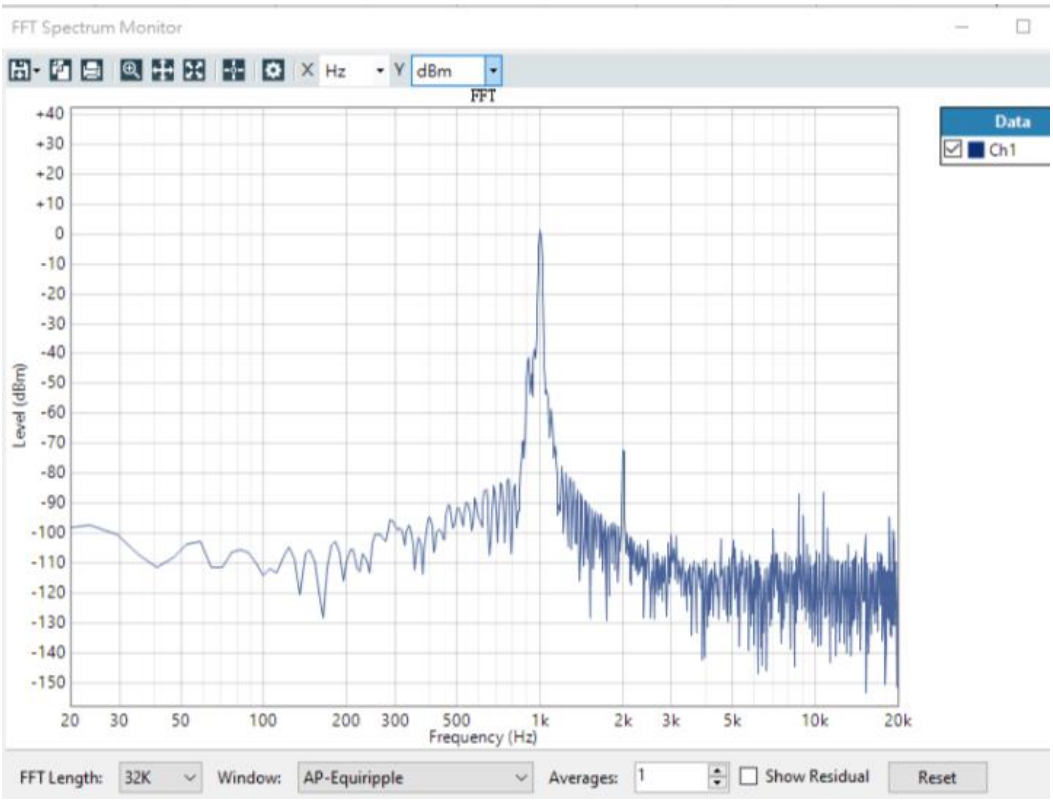
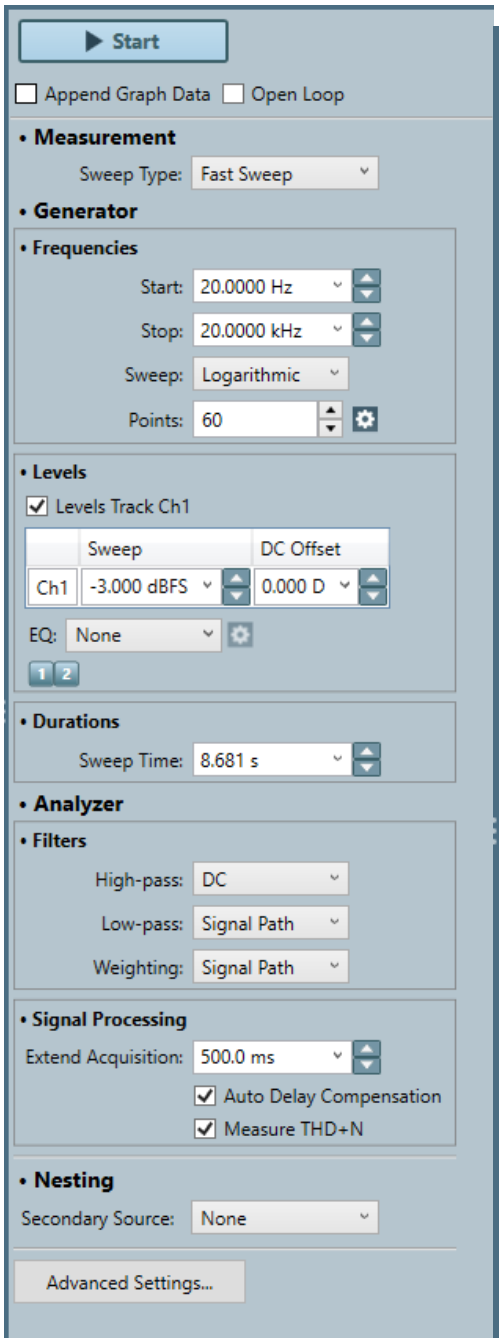


Figure 6 Line driver output (after R211 & R212)

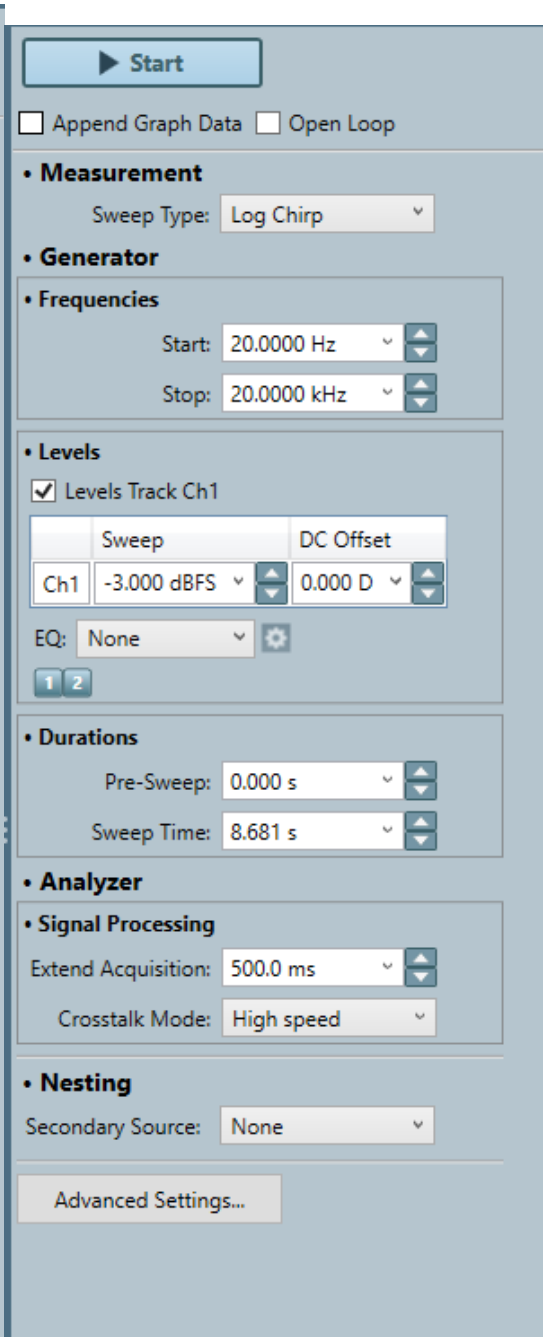
In addition, this is a screenshot of the FFT when sending 1KHz . Does what the email mentioned refer to the FFT spectrum after inputting a 1KHz sine wave signal ? I am not sure whether my measurement method is the same as the description. The following is a screenshot of the moment I input 1KHz.




FFT Spectrum Monitor
X Hz
Y dBm
FFT
Data
Ch1
+40
+30
+20
+10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
-150
Level (dBm)
20
30
50
100
200
300
500
1k
2k
3k
5k
10k
20k
Frequency (Hz)
FFT Length:
32K
Window:
AP-Equiripple
Averages:
1
Show Residual
Reset

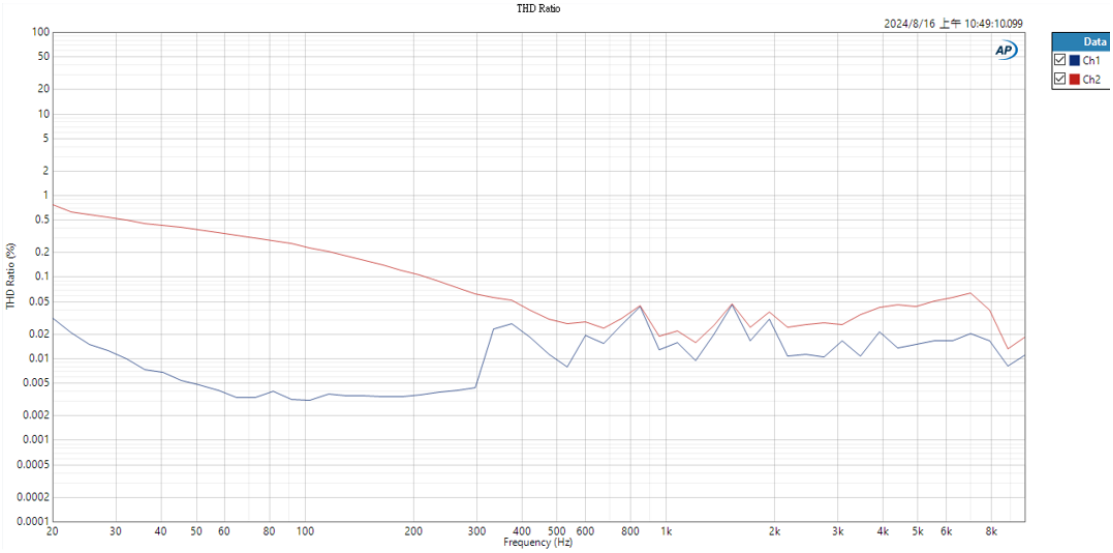


Vrms , T HD, THD+N settings

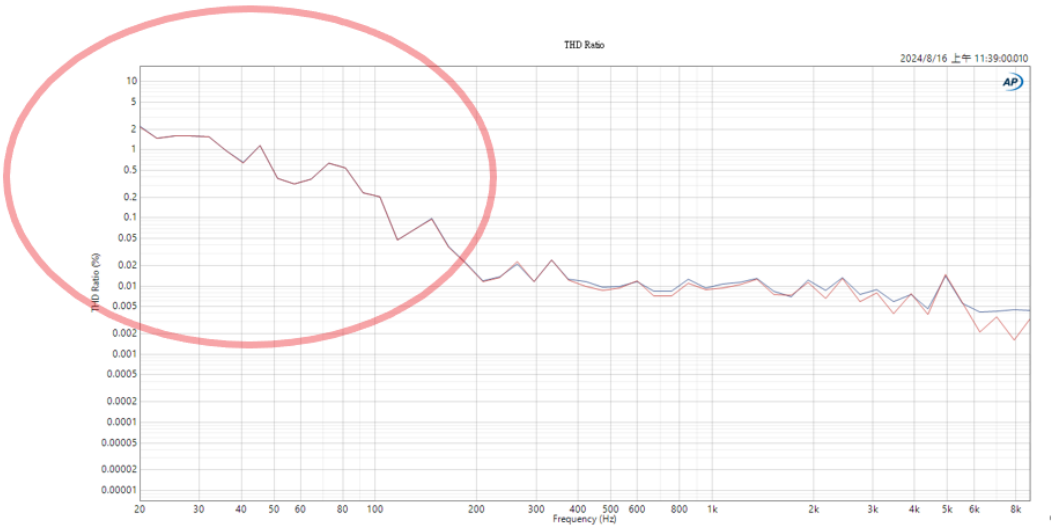


Crosstalk settings

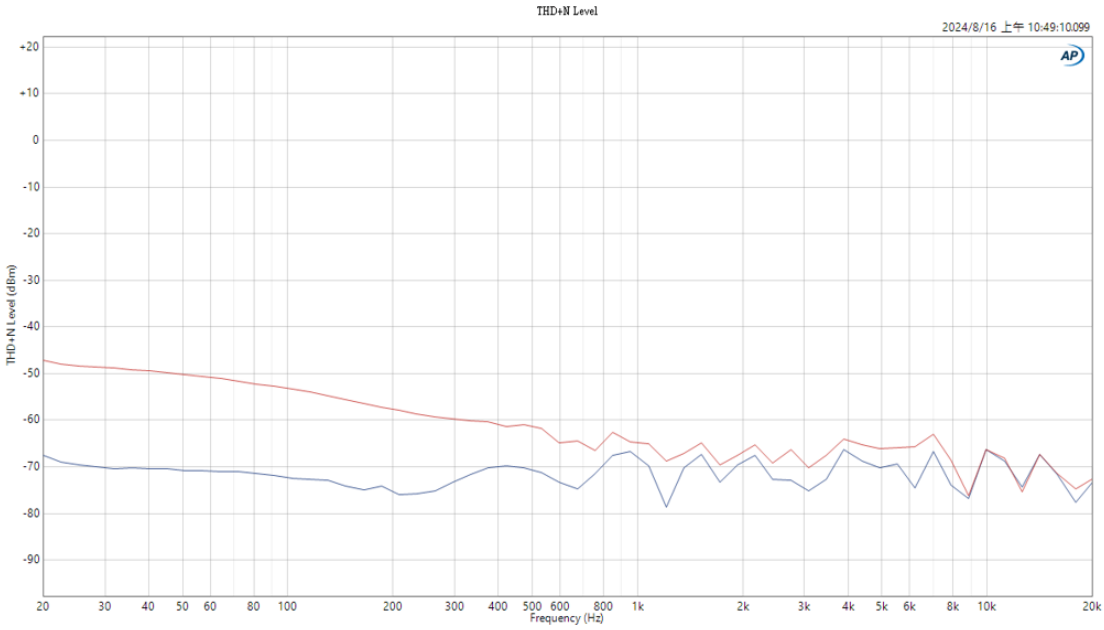
The following is the current status of measurement client products and our instruments,



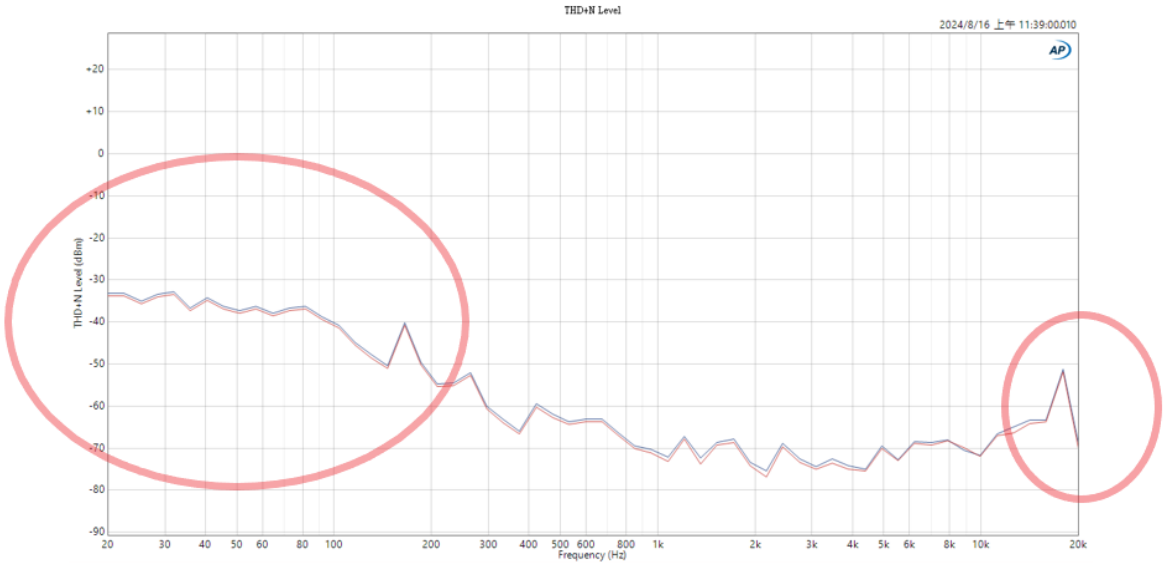
Client product THD(%)



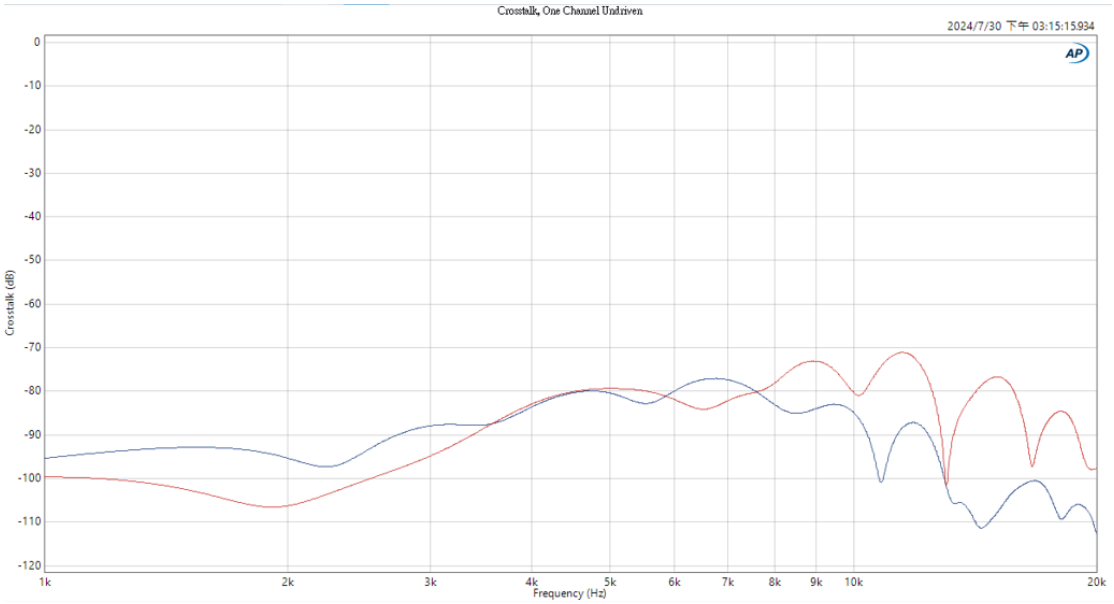
Instrument THD(%)



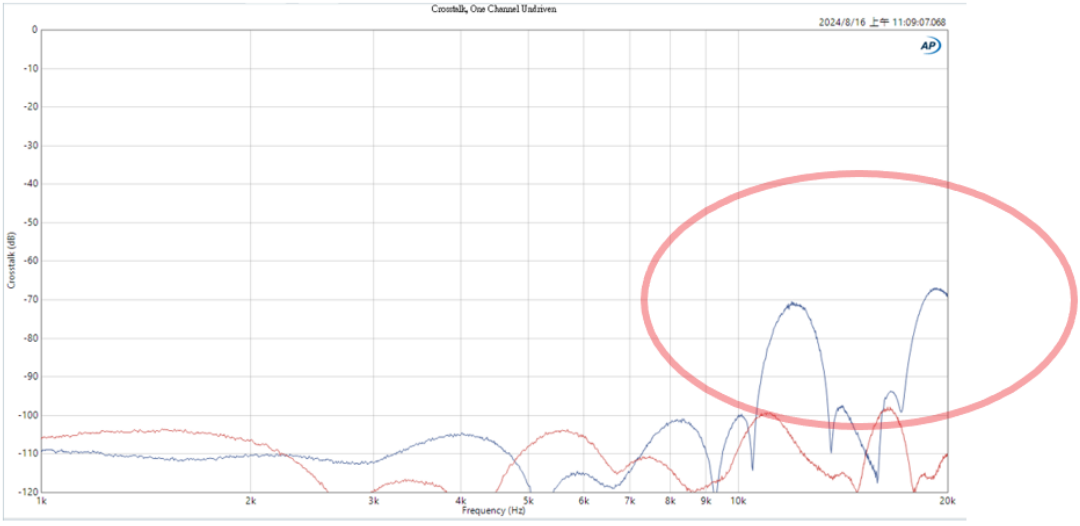
Client product THD+N(dBm)



Meter THD+N(dBm)



Client product Crosstalk(dB)



InstrumentCrosstalk(dB)

The red box is the area I want to improve. Currently, I will debug the THD, THD+N, and Crosstalk projects. Thank you.