HIFICLUB - Reference Isolator Test

Waversa's Noise Isolator EXT1 series has proven its effectiveness for many users of digital audio. This time, we are presenting the EXT Reference series, which is the upper model of the EXT1 series. The EXT Reference series is a product for fully fledged high-end audio users. Containing Level 10 sound quality improvement technology, its aluminum CNC housing is equipped with vibration and improved noise removal technology. The overall performance level enhancement is easily recognized by its superior sound quality.

Waversa Noise Isolator series is a patented new technology that not only separates the electrical signal noise from the digital signal, but in particular the noise that is inevitably generated during digital transmission.

We highly recommend the WEXT-Reference Noise Isolator it to anyone using digital audio.

Complimentary Product

W LAN2-30P and W USB3-30P are W LAN-EXT1, W USB-EXT1 dedicated cables fully liberate the full potential of the improvements on offer.

Computer Streaming and Noise

Streaming using computers and networks is exposed to various kinds of noise. Digital music has many negative elements such as being perceived as "cold", "harsh" and "unmusical" for performance pieces that need to convey delicate emotions.

The WNoise Isolator series recently released has a structure of patented technology that removes noise using electromagnetic fields. With this structure, it is a product that focuses on preserving musical nuance by removing noise generated from the LAN port and externally. Calling this product an "isolator" is simply an abstract name for its role in isolating noise, but its application is not so simple.

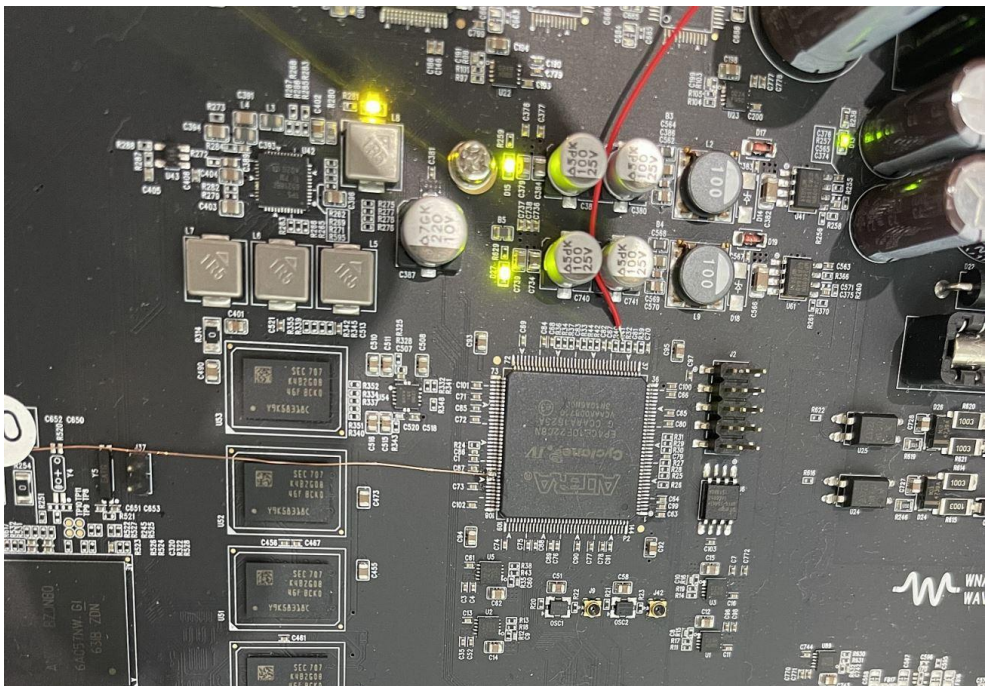
W USB-EXT Reference

W XLR-EXT Reference

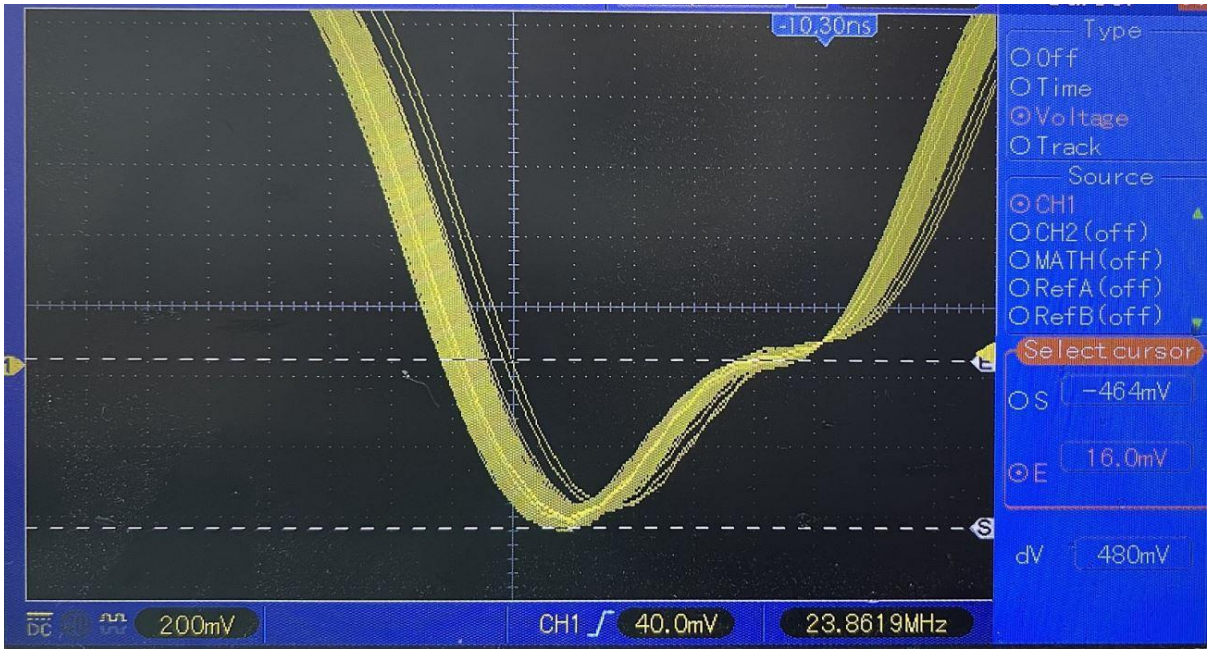
EXT Reference Measurement Result

The most problematic aspect for digital systems is the overshoot and undershoot of digital signals. This causes a variety of noise and affects Analogue to Digital (AD) conversion and vice versa, so we constantly make efforts to eliminate this noise, but in theory it is impossible to fundamentally eliminate it completely. AD components comprise of devices such as cameras and microphones, and DA components such as DA converters and TV screens.

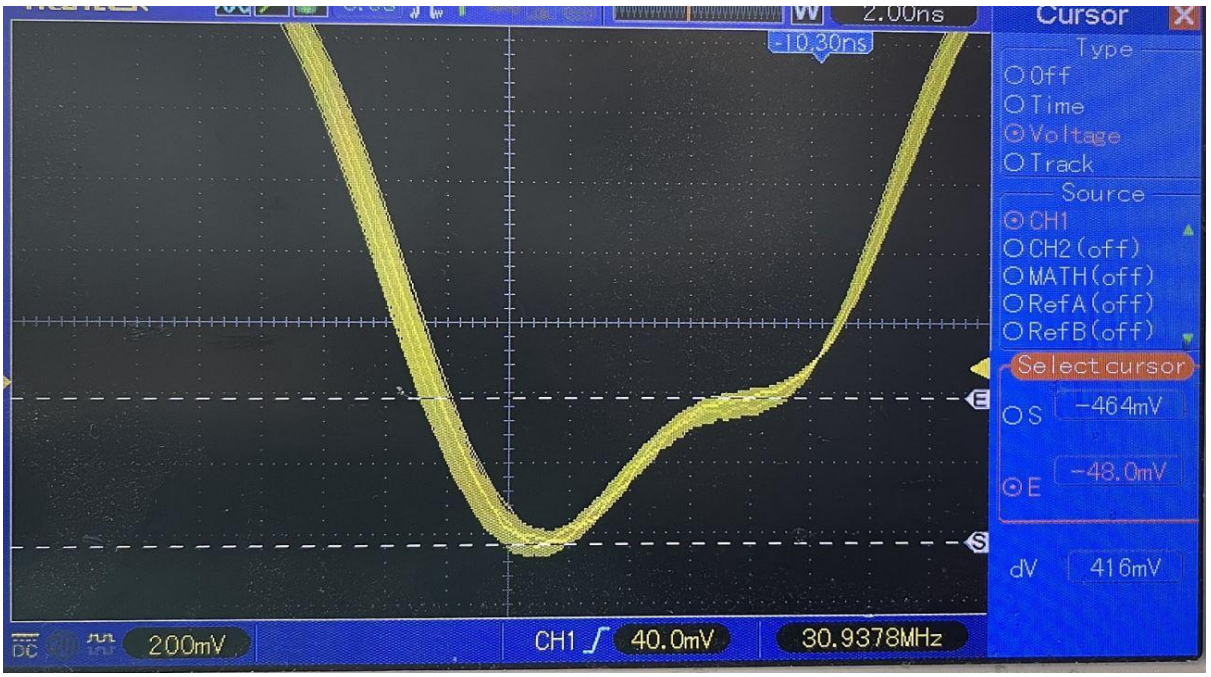
To this end, we conducted an interesting experiment to determine the performance of the Waversa isolator, and we will disclose the results. We did this by connecting an oscilloscope probe to the audio clock between the WNAS3's internal FPGA and DAC chip. Since this part is far away from the outside in terms of circuitry, it is a suitable location for performance verification.



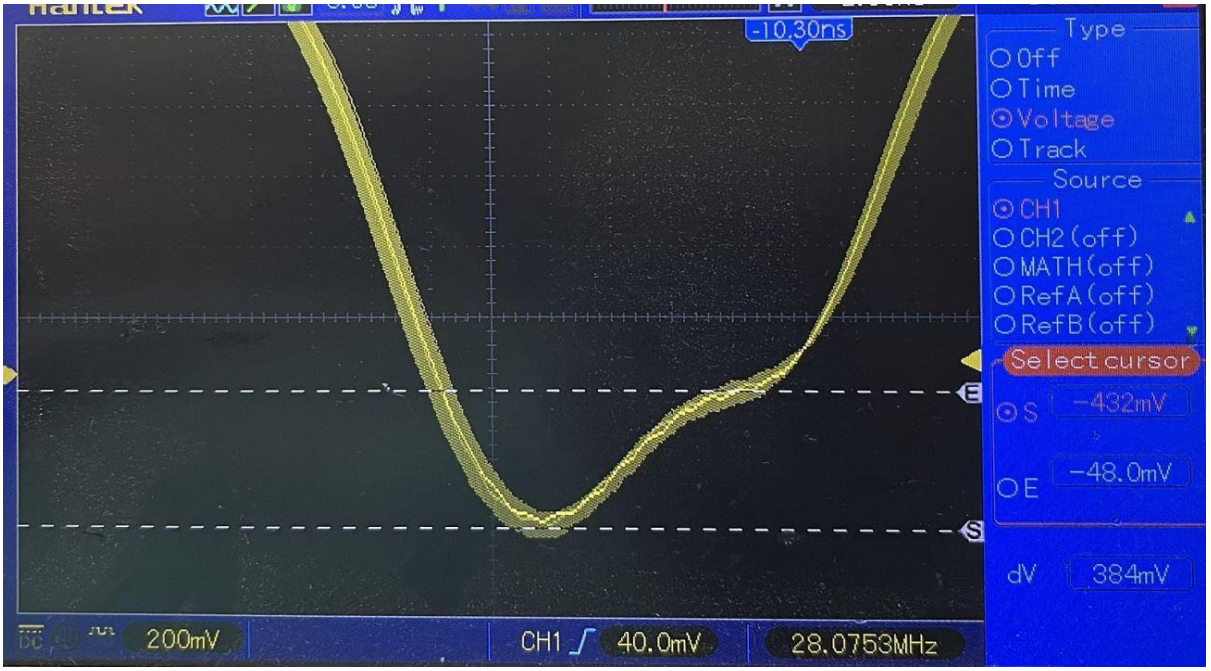
The red line shown at the top is connected to the scope for measurement. The lower part of the picture shows the external terminals, and a LAN isolator is installed here and tested. First, the measurement results without an isolator. Because the probe is far away, a rather high value is obtained, but it is because it is a relative comparison.



If you look at the lower right corner of the screen, you can see that the clock's undershoot is about 480mV. Then connect the LAN reference isolator and measure.



It's Gigabit connected and the reading is 416mV, a 64mV reduction. This means that the overall impulse noise has been reduced by 10-20%, and this result is reflected in the analogue output through the DAC. In other words, when the DAC is operating, it is less affected by noise. Next, I used a WLAN2 cable to connect at 100Mbps.



This figure was 384 mV, a decrease of 96 mV. This means that when using 100Mbps, the effect is more and noise reduction is achieved at well over 20%. What is the difference between 100Mbps and 1Gbps? Many people inquired and recommended 100Mbps, but this is because 100Mbps and 1Gbps signal methods are different.

1Gbps is less effective for an isolator because it has a relatively analogue signal in the way that it expresses multiple bits rather than digital 0s and 1s. If you have only used gigabit, please try using 100Mbps. The performance of the reference isolator is consistent because the results are the same even when repeated tests are continuously performed for accurate comparison.