

# OPPO BDP-83SE (Special Edition) and NuForce Edition Universal Blu-ray Players



**JOHN E. JOHNSON, JR. JANUARY 24 , 2010 BLU-RAY PLAYERS**



## Introduction

OPPO's BDP-83 Universal Blu-ray Player has been very successful, as it is one of only a few players that will output all codecs (CD, DVD-A, SACD, Dolby TrueHD, DTS-HD Master Audio) in digital format through an HDMI connection. Now, with the Special Edition of this player, called the BDP-83SE, along with a tweaked version of the SE, called the BDP-83SE NuForce Edition, analog audio performance is improved significantly, and in fact, both players perform like units costing much, much more.

I won't be going into a long discussion of the design and features of the SE and NuForce versions, as they are the same as the standard version except that the stereo analog outputs are now state of the art.

Here is a photo of the rear panel. It is the same for the SE version as it is for the NuForce version.



To quote from OPPO's website:

“The OPPO BDP-83 Special Edition uses the state-of-the-art Sabre32 family of Digital-to-Analog Converters (DAC) from ESS Technology. The Sabre32 family is known as one of the industry's highest performance audio DACs and are often found in high-end audiophile and professional equipments. The OPPO BDP-83 Special Edition uses an 8-channel Sabre Premier (ES9006) DAC chip for its 7.1 multi-channel output. The dedicated stereo output uses another 8-channel Sabre32 Ultra (ES9016) DAC chip by stacking 4 DACs for each of the Left and Right channels to achieve even greater audio performance.”

The price of the BDP-83SE is \$899, sold direct on their website.

### [OPPO Digital](#)

NuForce took the BDP-83SE a step further by replacing critical analog components with the high-grade equivalents NuForce uses in its high-end audio components. They also added high-speed power regulation on both DACs and all analog power rails, and bypassed the stereo and 7.1 channels' output muting circuits, changing them to relays.

The BDP-83SE NuForce Edition is available through dealers, with an MSRP of \$1,295.

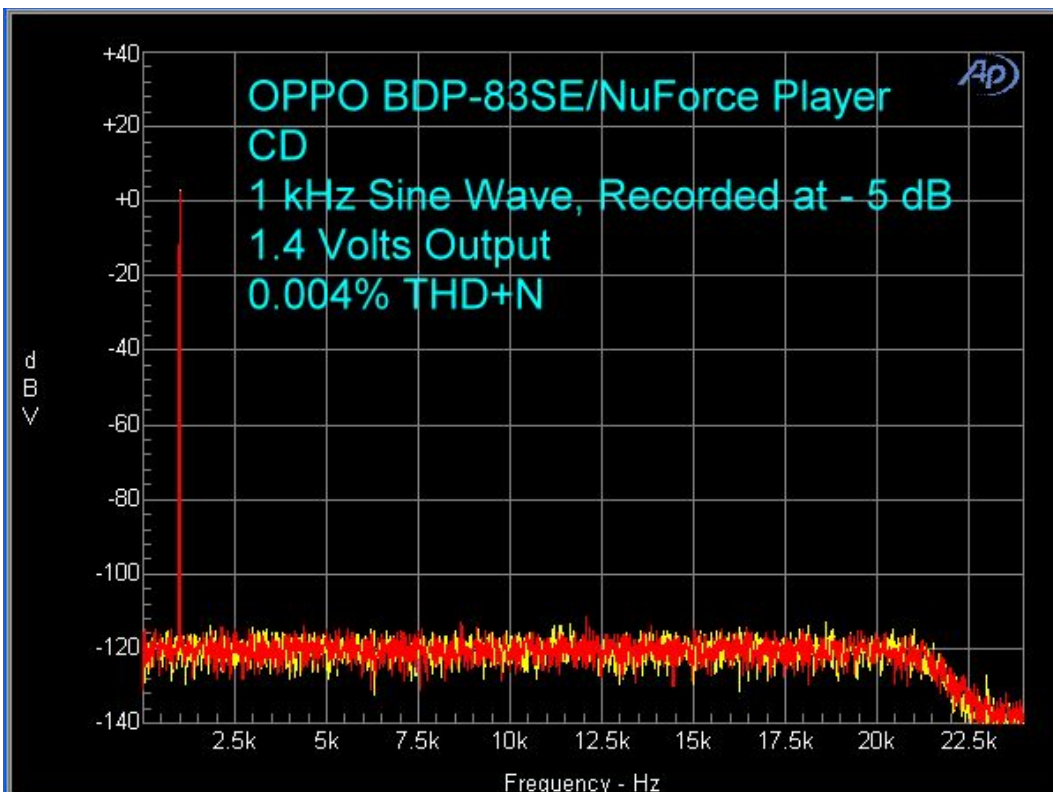
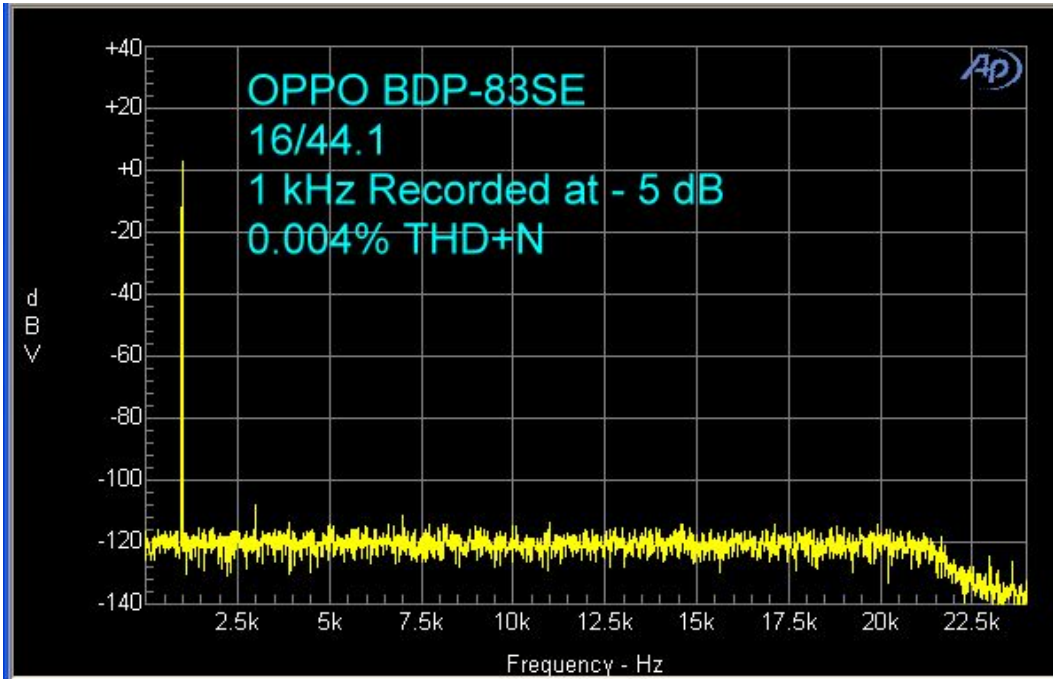
I listened to a number of CDs, SACDs, and DVD-As, and the clarity of the sound (detail) was noticeably better than with the standard version. It wasn't a huge difference, because the standard version does pretty well with analog audio too, but it was definitely better. But, rather than go on and on with subjective impressions, let the graphs tell the story.

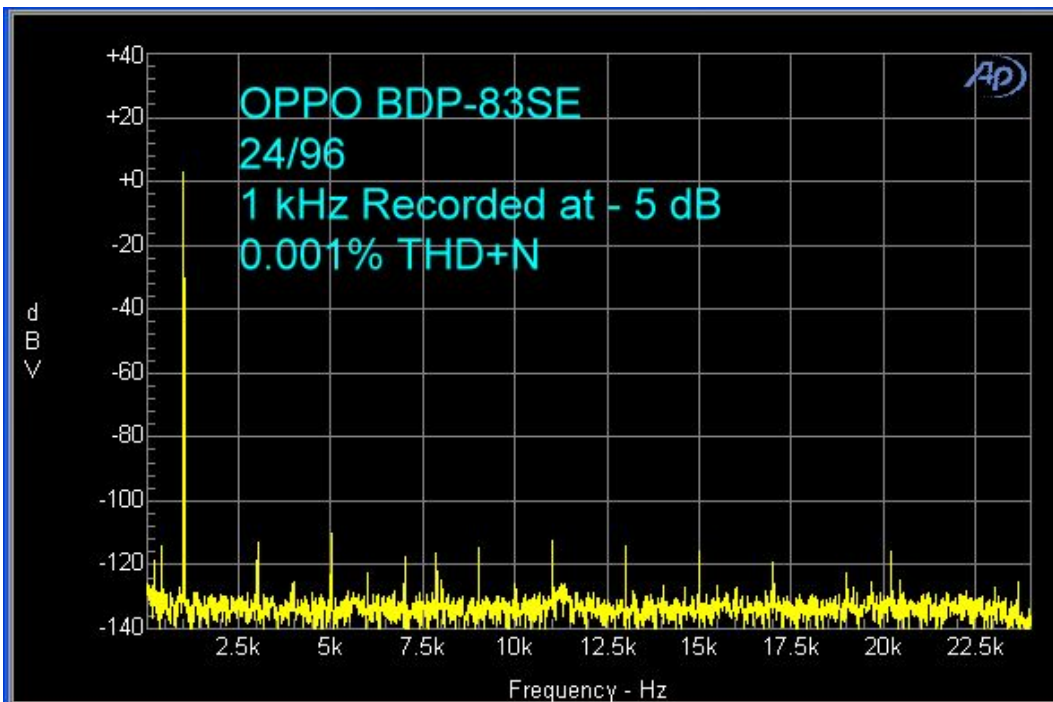
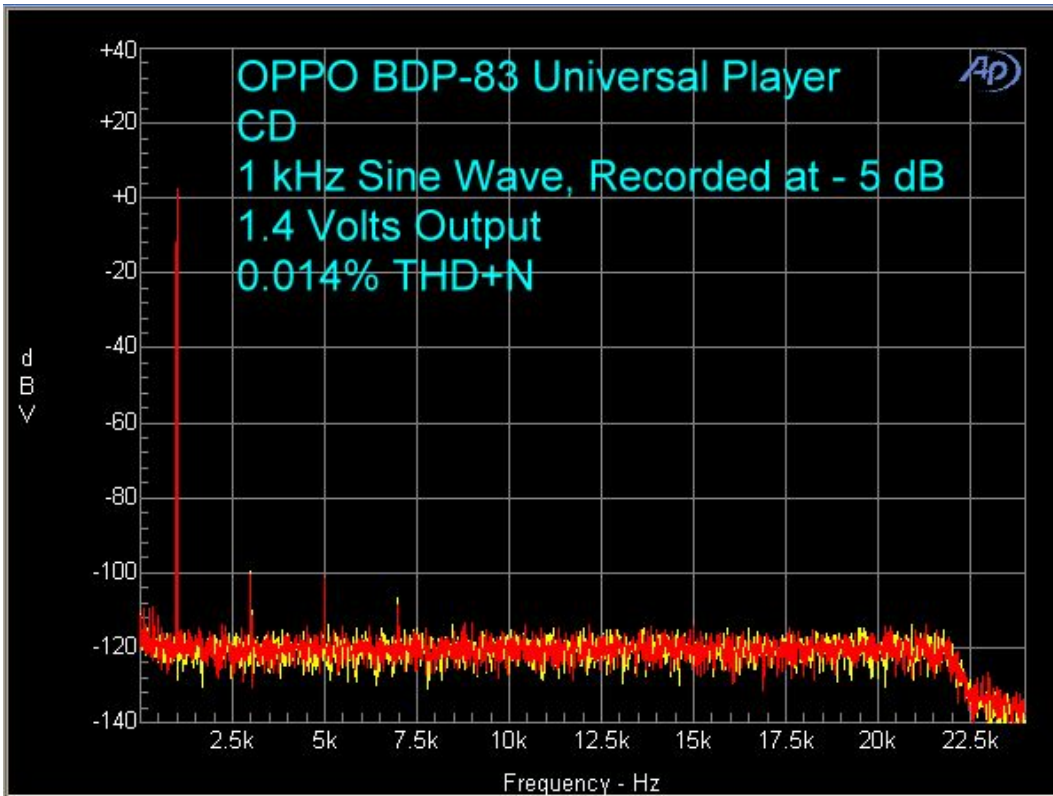
### On the Bench

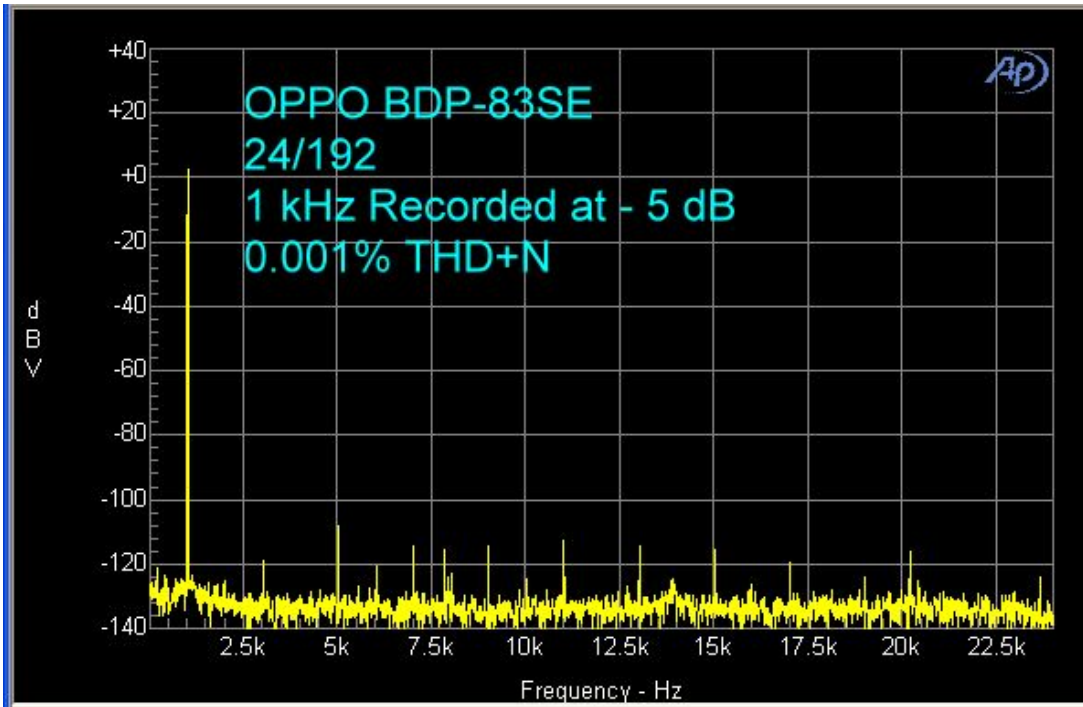
Tests were performed into a 100 kOhm load. Output ranged from 1.2 volts to 1.5 volts RMS. There are a lot of graphs on this page. If you get a little confused as you scroll down, comparisons are made between the BDP-83SE, BDP-83SE NuForce Edition, and the BDP-83 Standard Edition. Where they are compared, you will see a graph with a yellow spectrum followed by two graphs with red spectra. The graph with the yellow spectrum is the BDP-83SE, and the next graph following that one will be the BDP-83SE NuForce Edition (red), and then the BDP-83 Standard Edition (red). So, when you

want to compare graphs for a specific test, scroll between the yellow graph and the two red graphs below it.

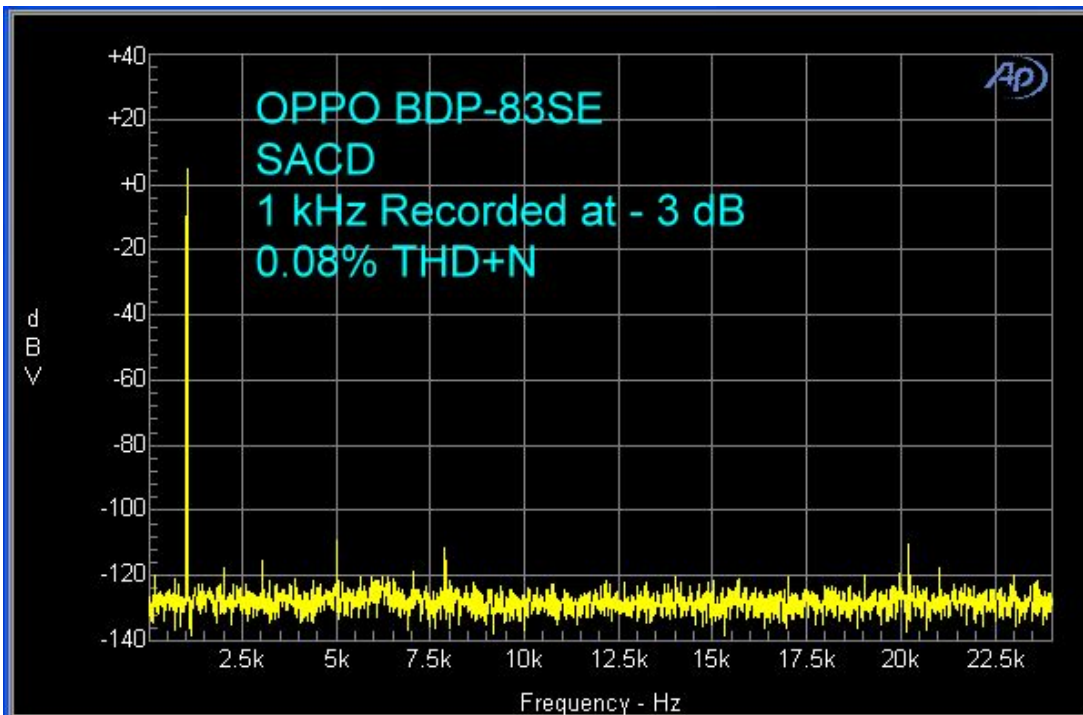
At 1 kHz, THD+N was only 0.004% at 16/44.1 sampling, and 0.001% at 24/96 and 24/192. With SACD, the value was a bit higher because of the out-of-band noise, but you can see that the peaks within the audio band (20 Hz – 20 kHz) are at least as good as the other graphs.

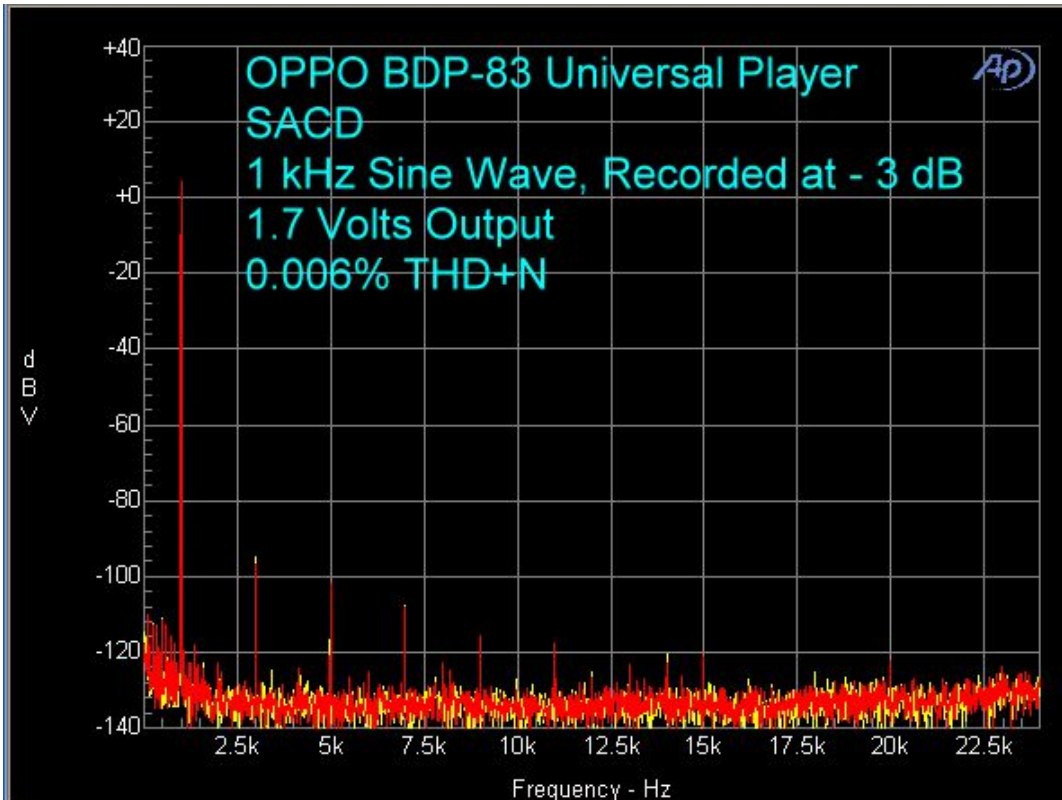
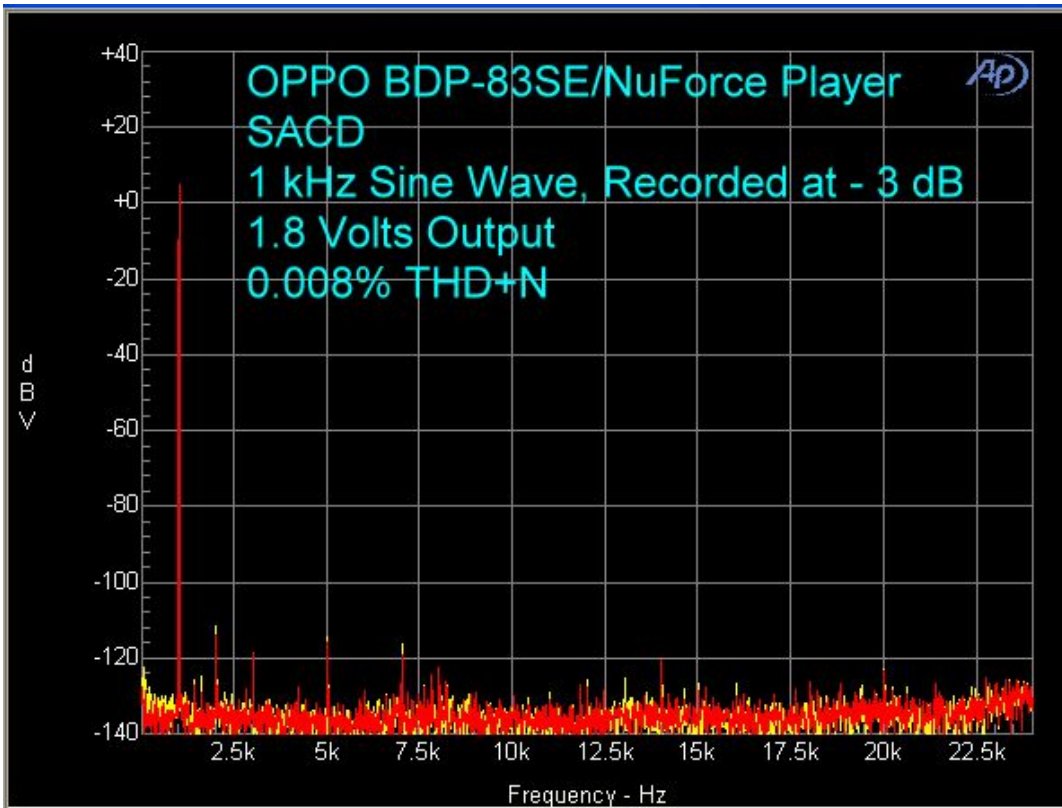




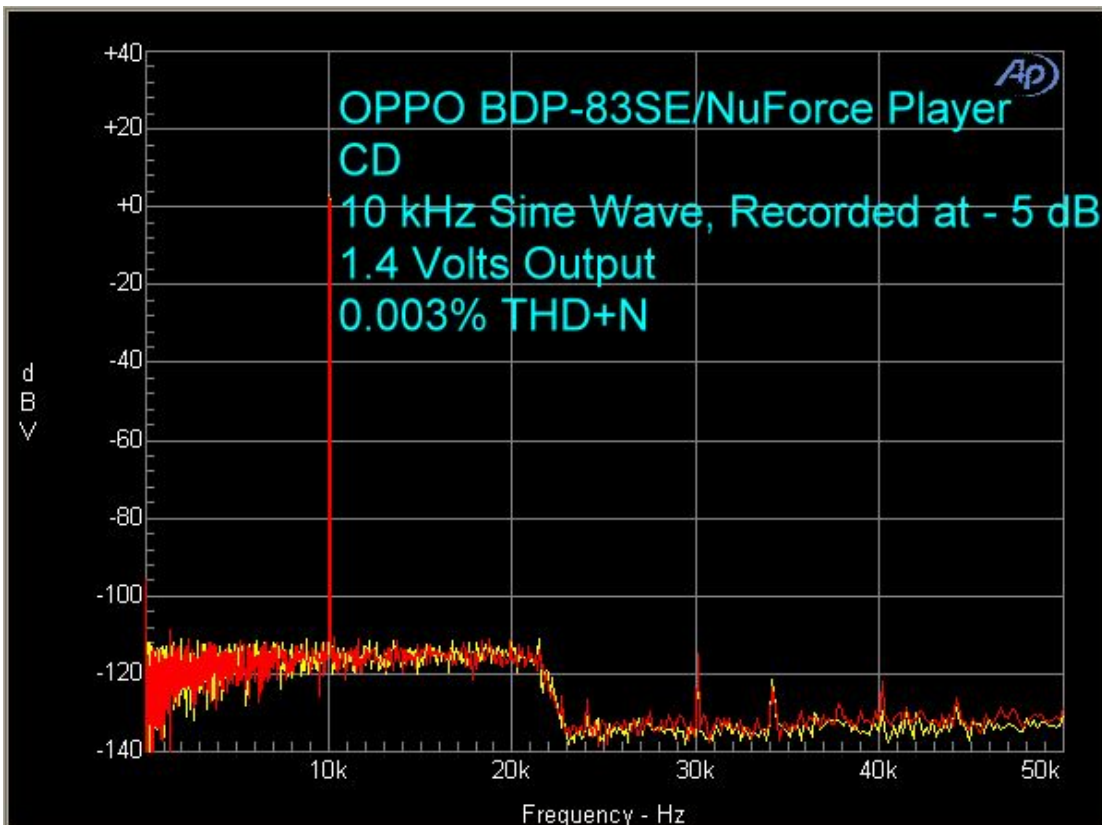
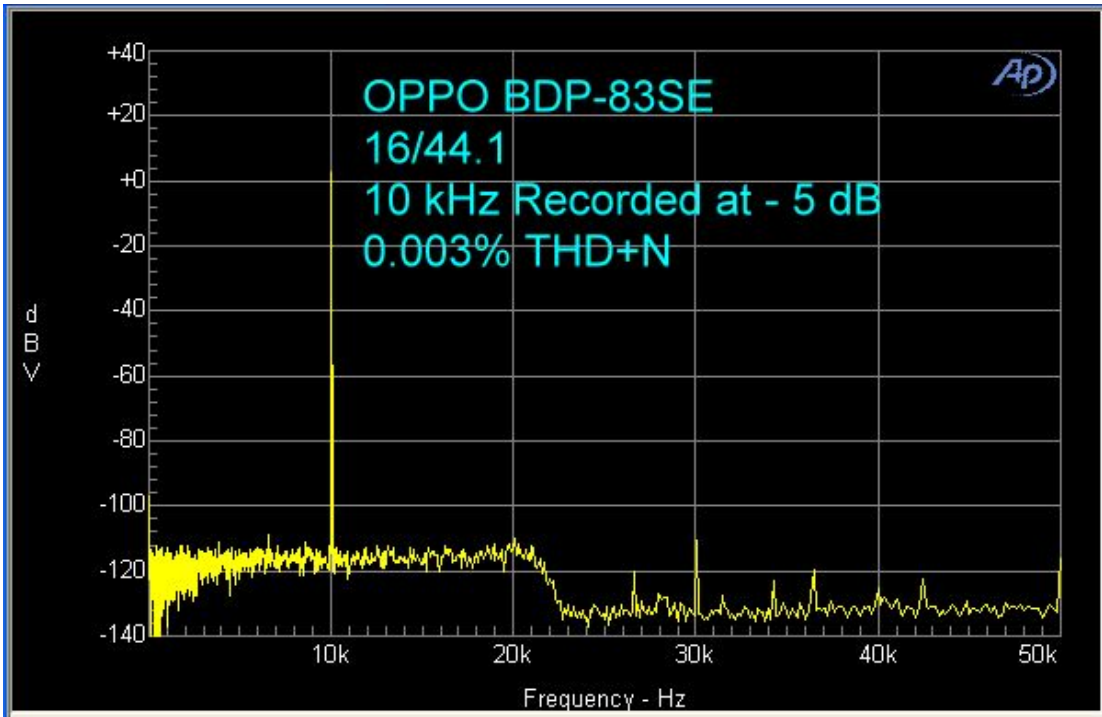


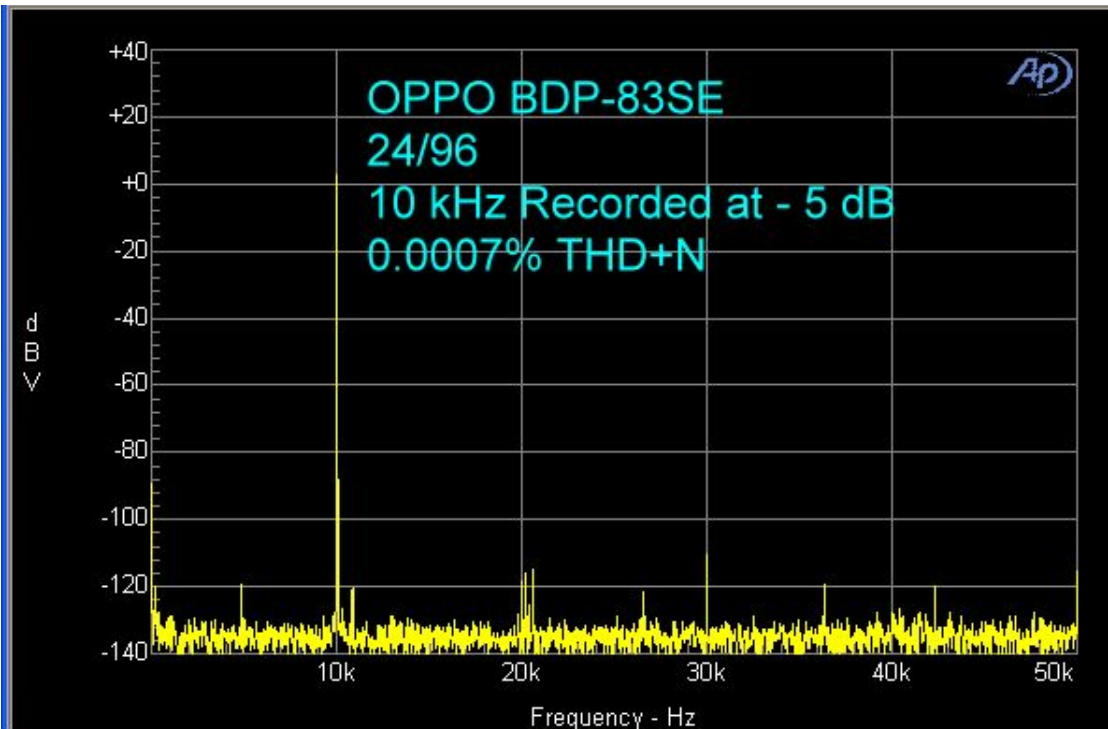
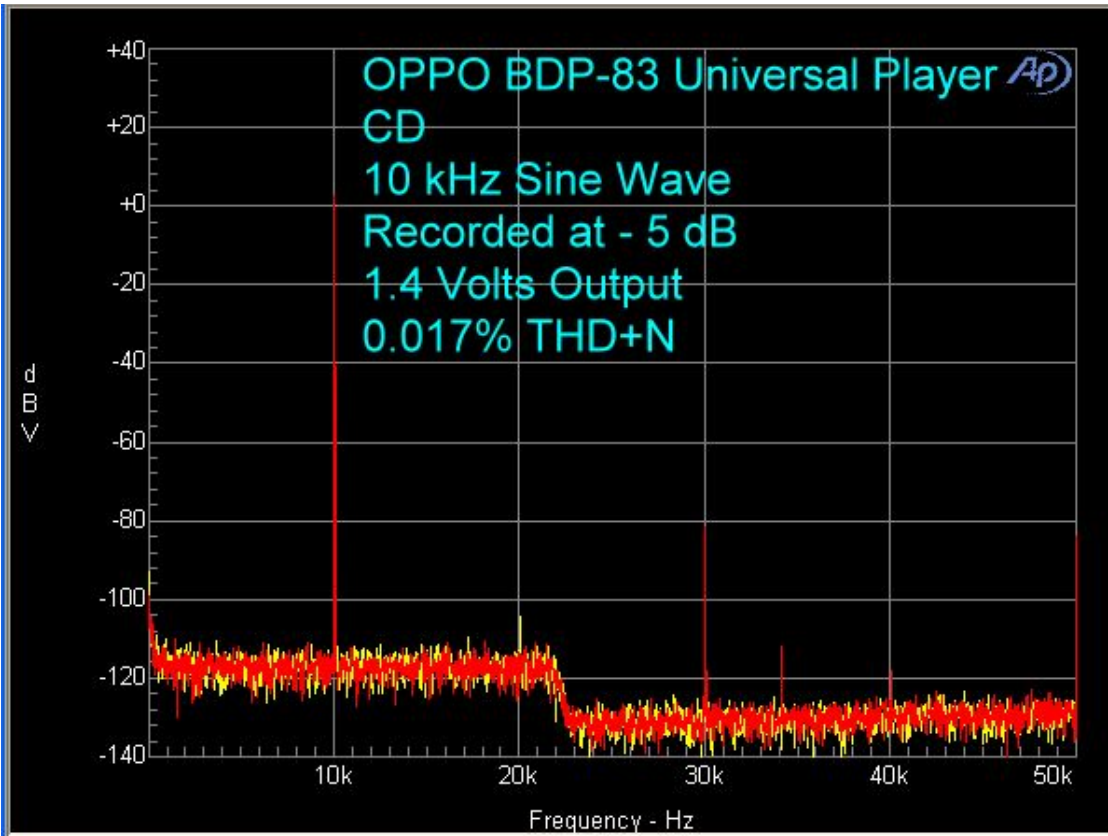
With SACD, again, the NuForce performs a bit better than the SE, and both are obviously much better than the SV.





At 10 kHz, distortion was still very low. Again, the value for SACD was higher due to the out-of-band noise that reaches its highest level at 40 kHz. This noise is typical of Delta-Sigma modulation and is one of the criticisms of SACD.









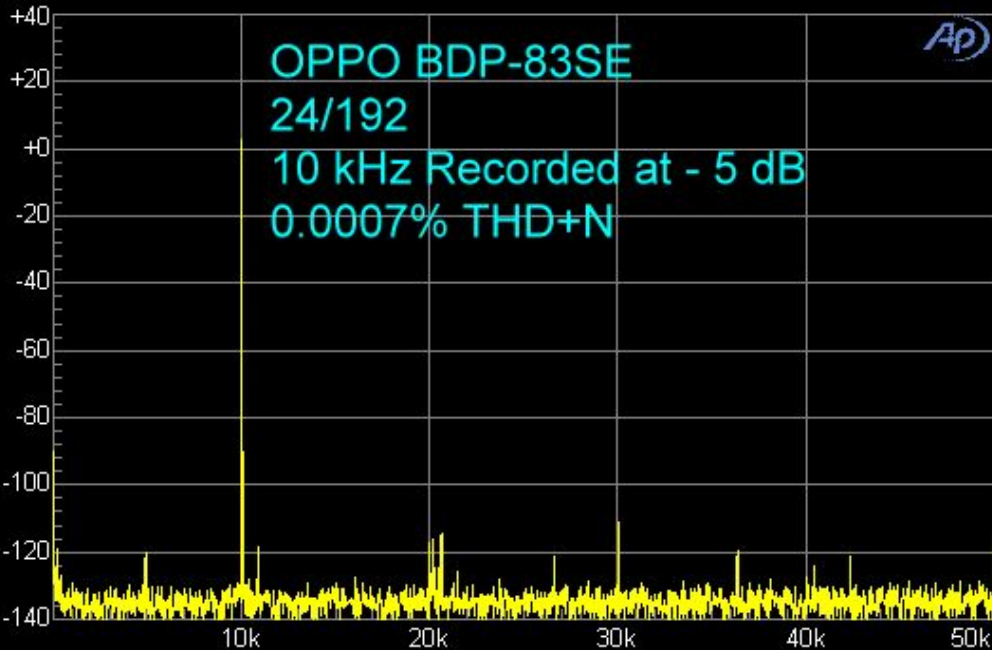
OPPO BDP-83SE

24/192

10 kHz Recorded at - 5 dB

0.0007% THD+N

dB  
V



Frequency - Hz



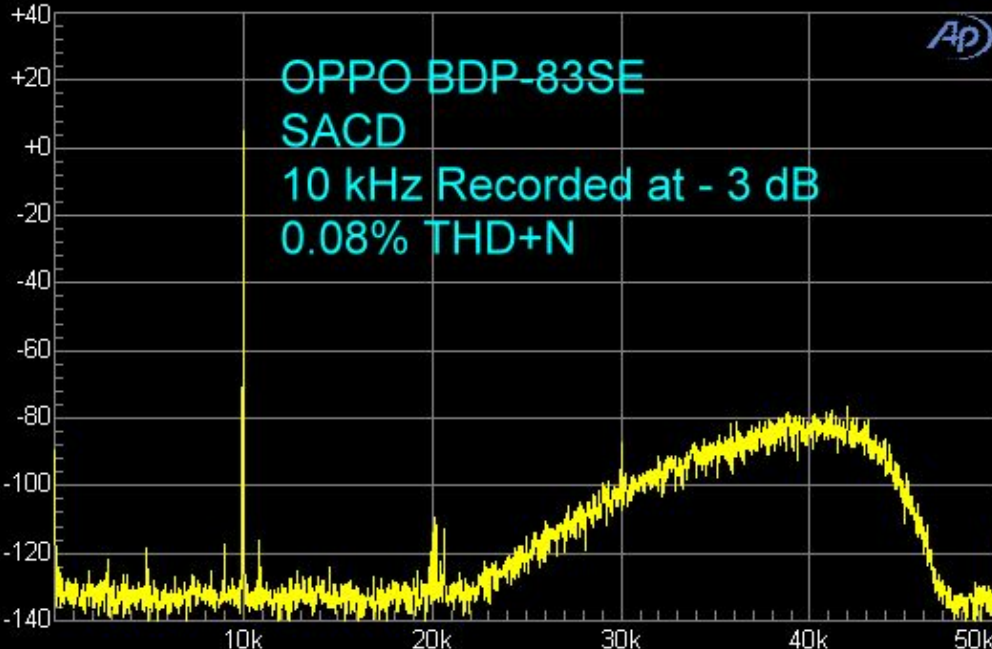
OPPO BDP-83SE

SACD

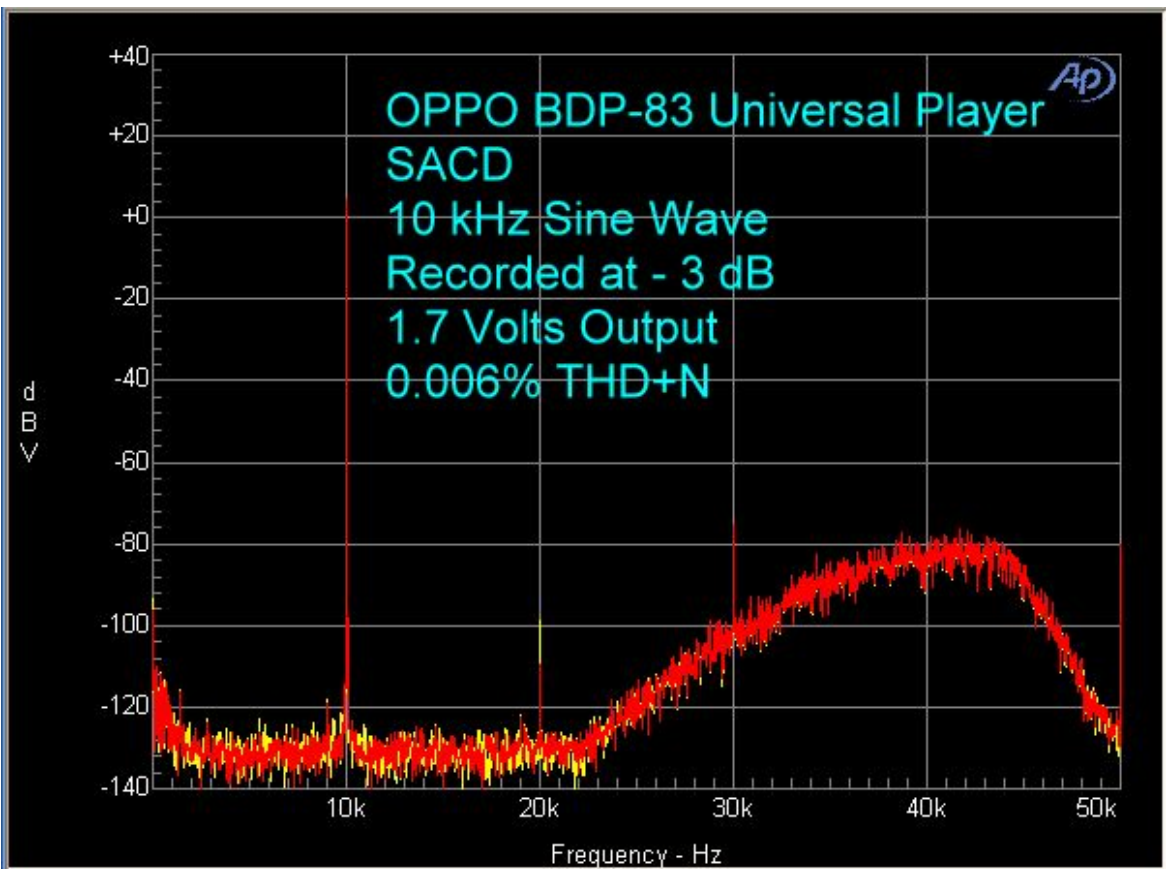
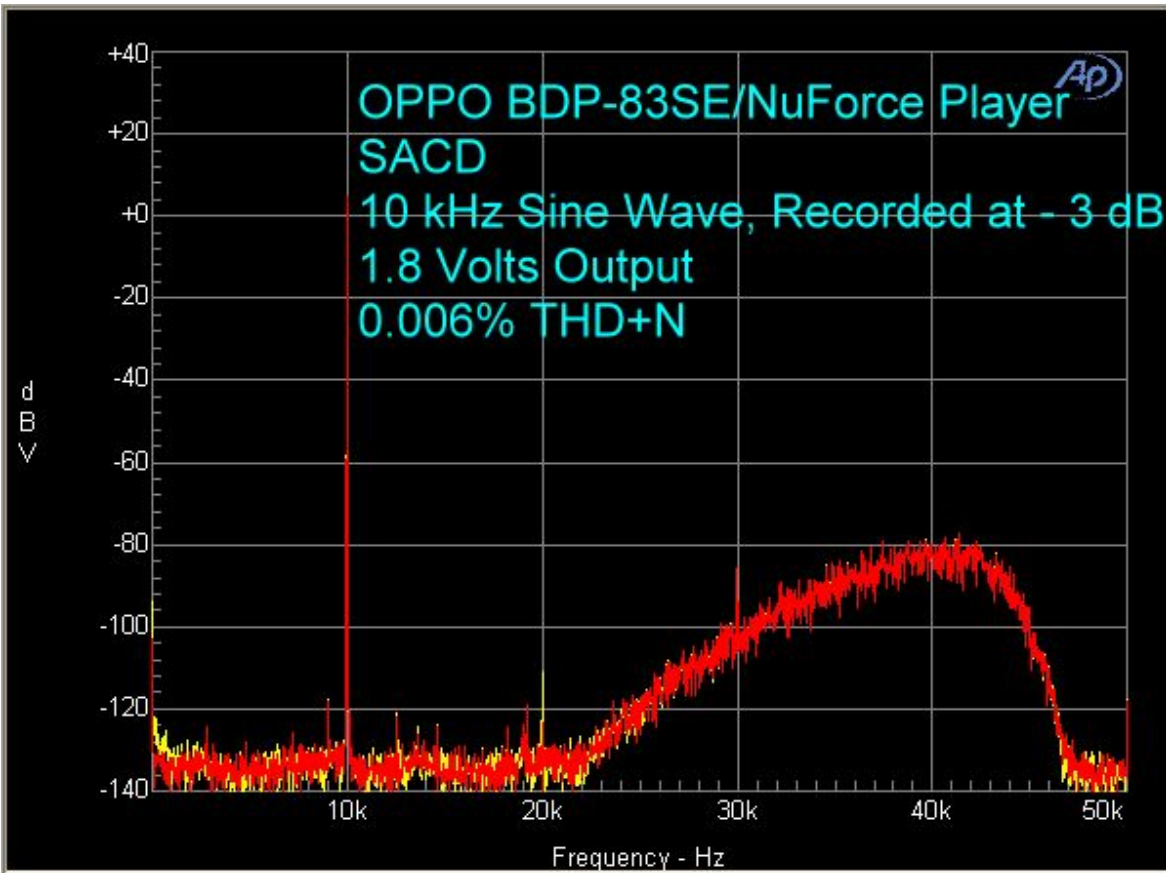
10 kHz Recorded at - 3 dB

0.08% THD+N

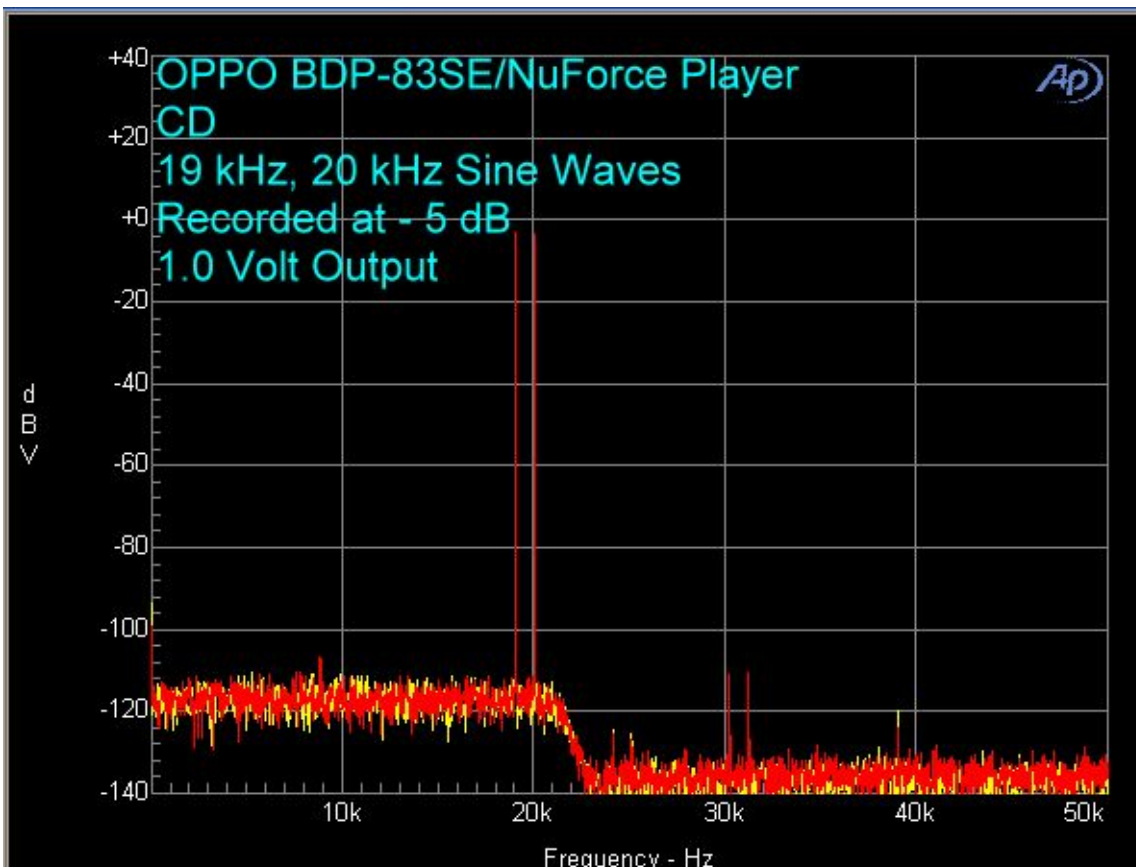
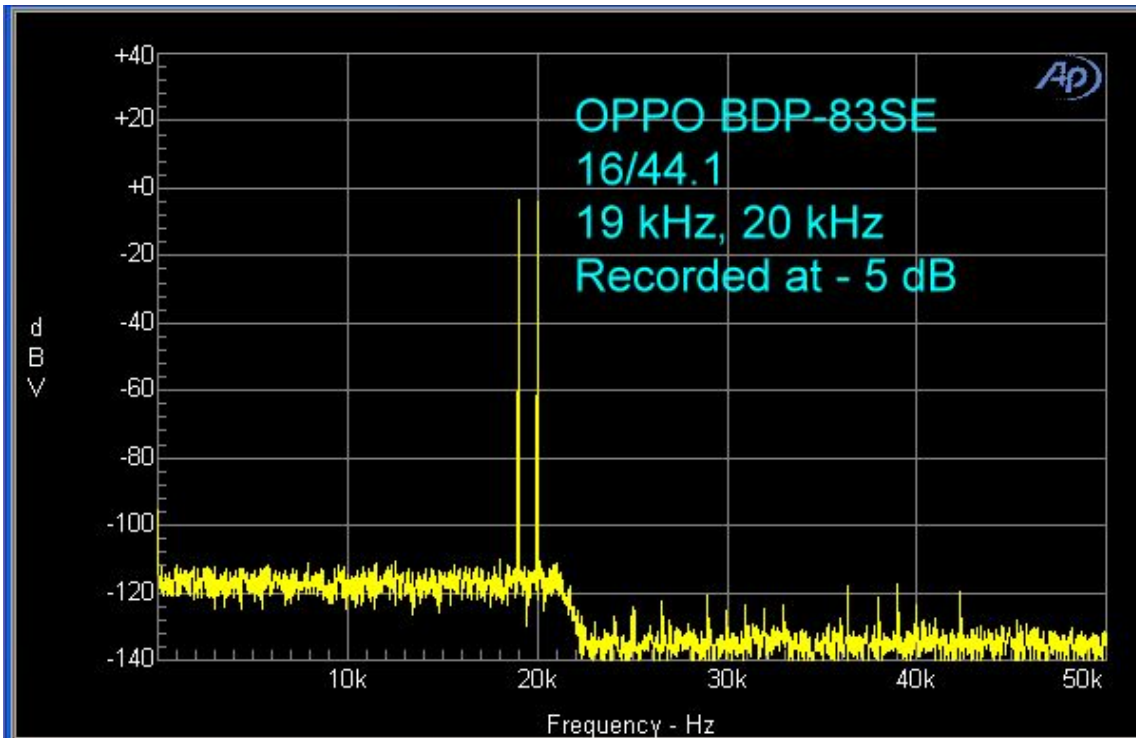
dB  
V

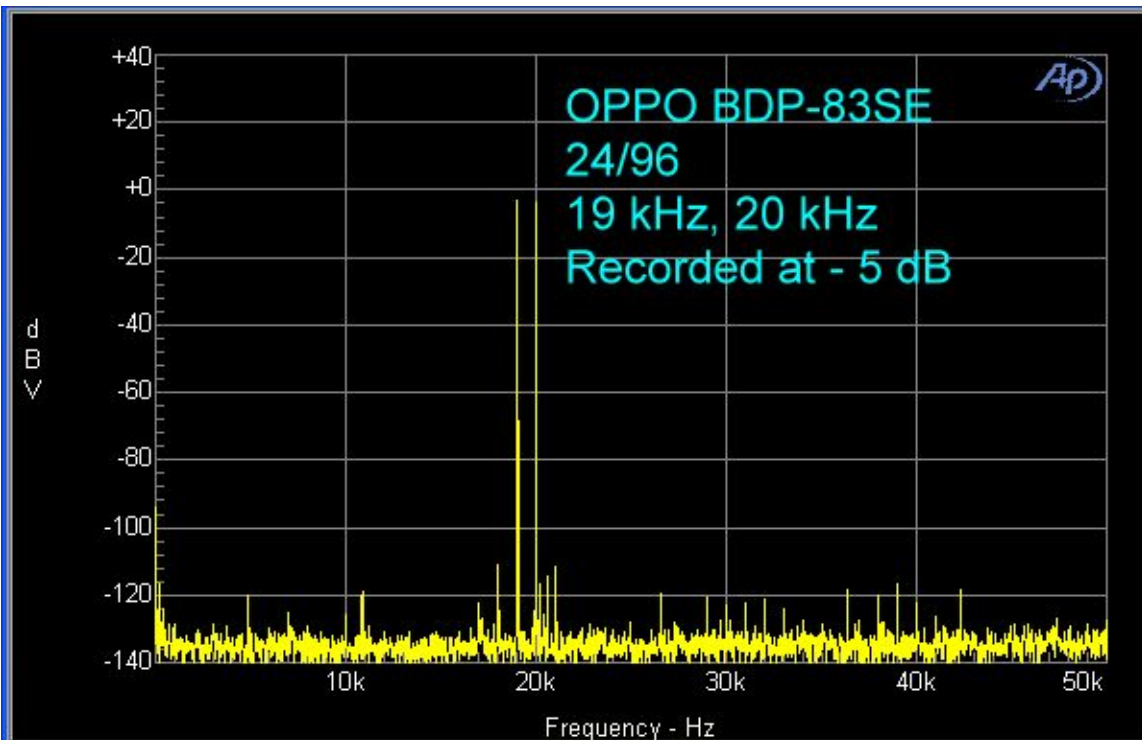
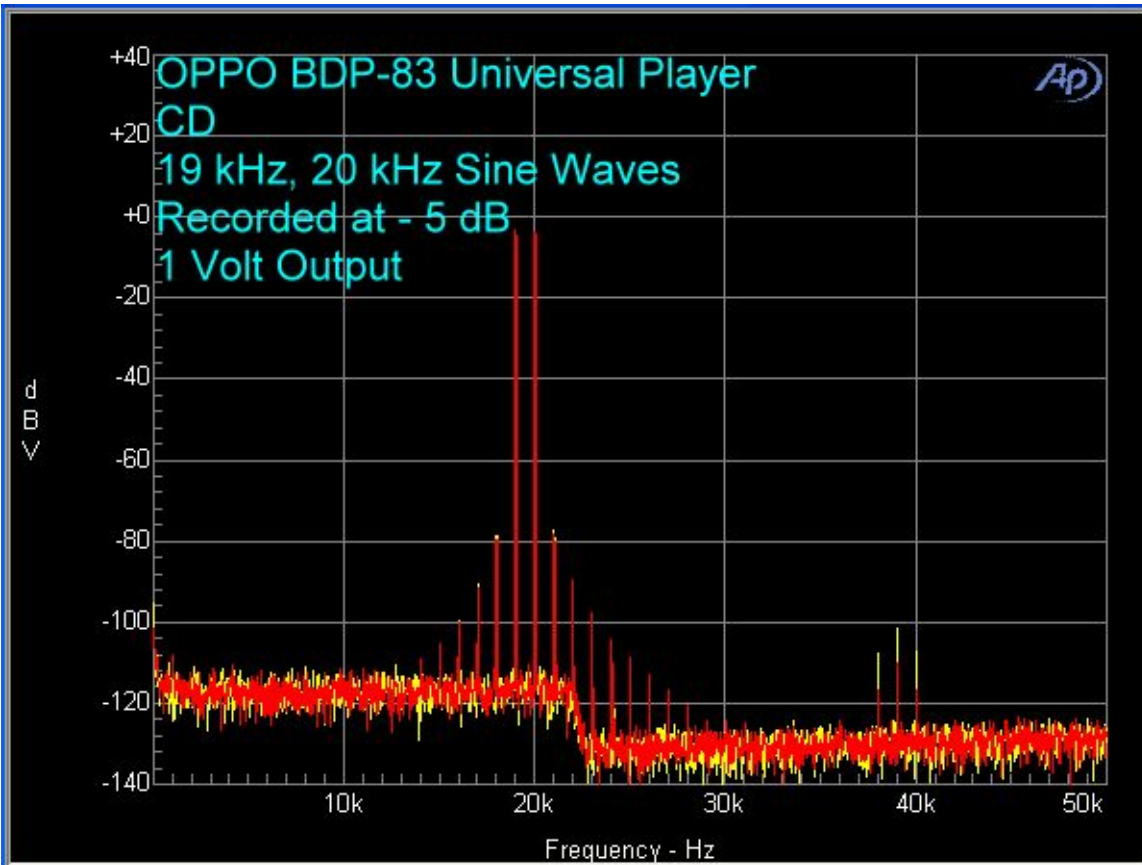


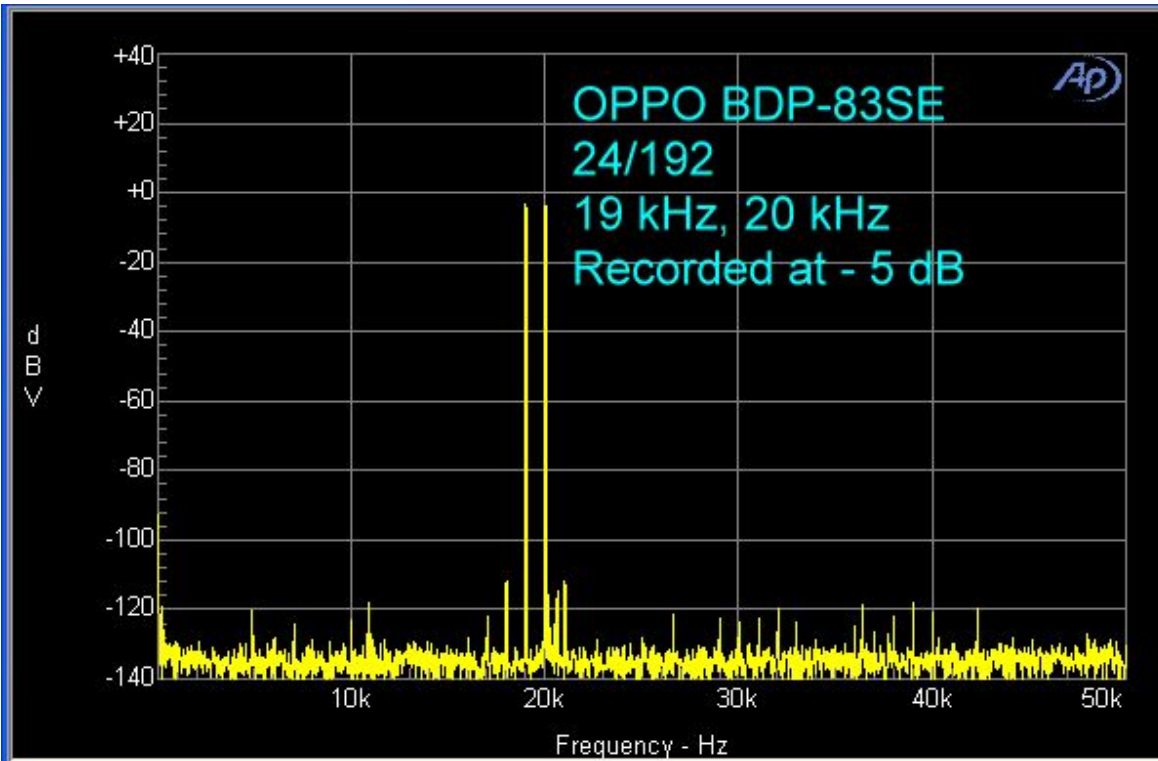
Frequency - Hz



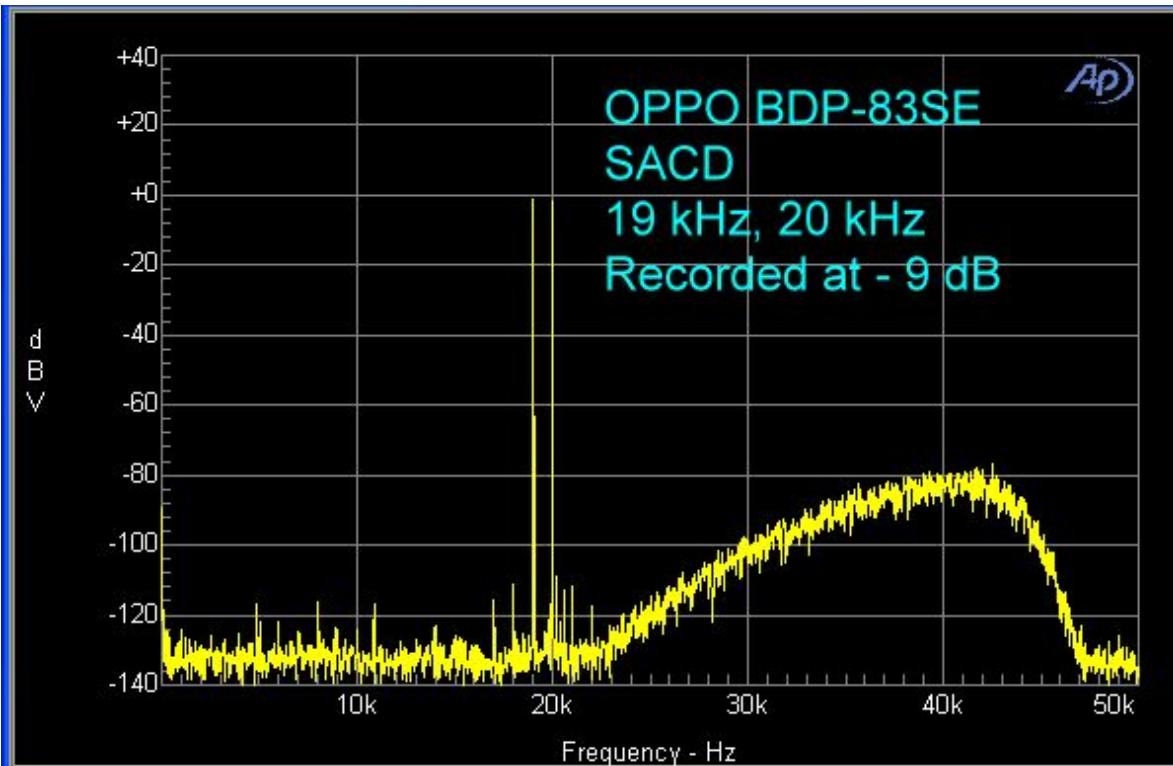
Using 19 kHz and 20 kHz sine waves as the test signal, the B-A peak at 1 kHz was nil. This is *very impressive*. The bottom graph (SV) has numerous side peaks around the 19 kHz and 20 kHz input signals. The difference between the SE and the NuForce is that the NuForce has less side peak signal (look at the broader peaks between - 60 dB and the baseline with the SE version).

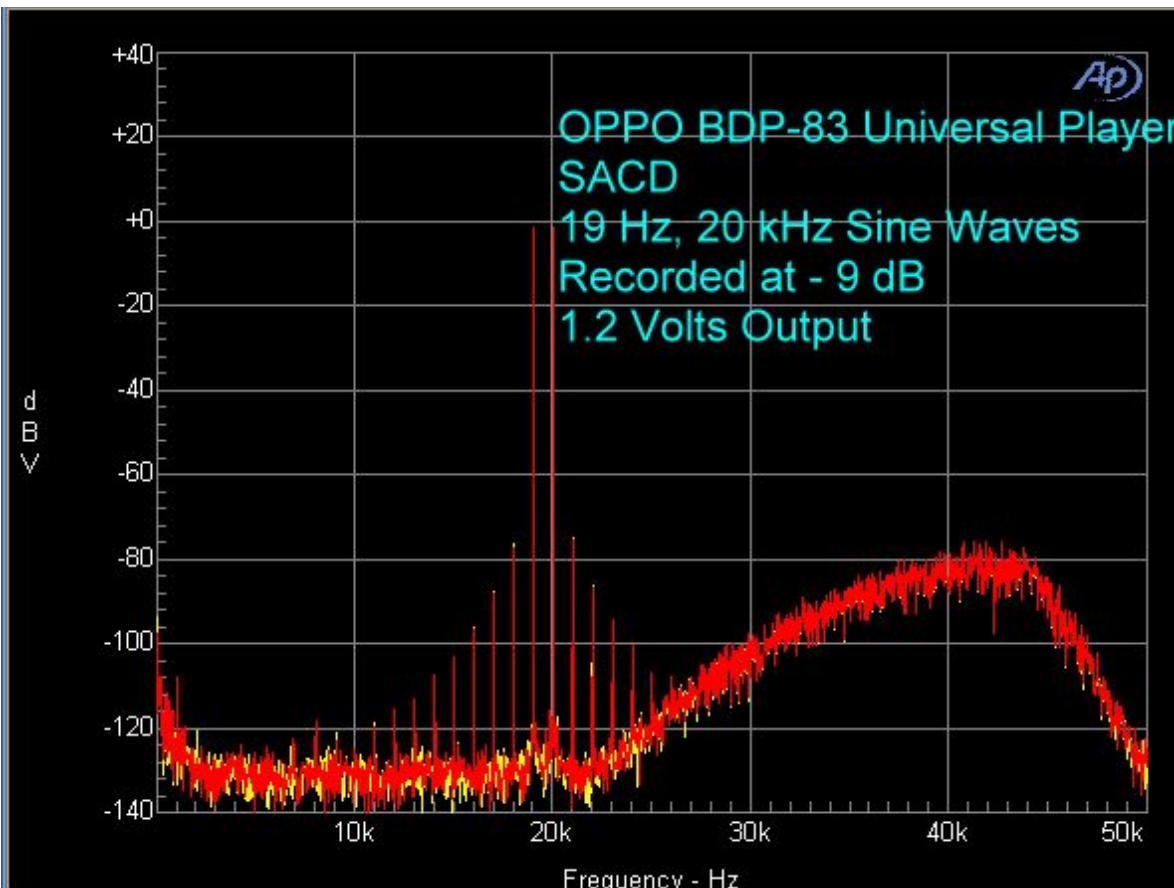
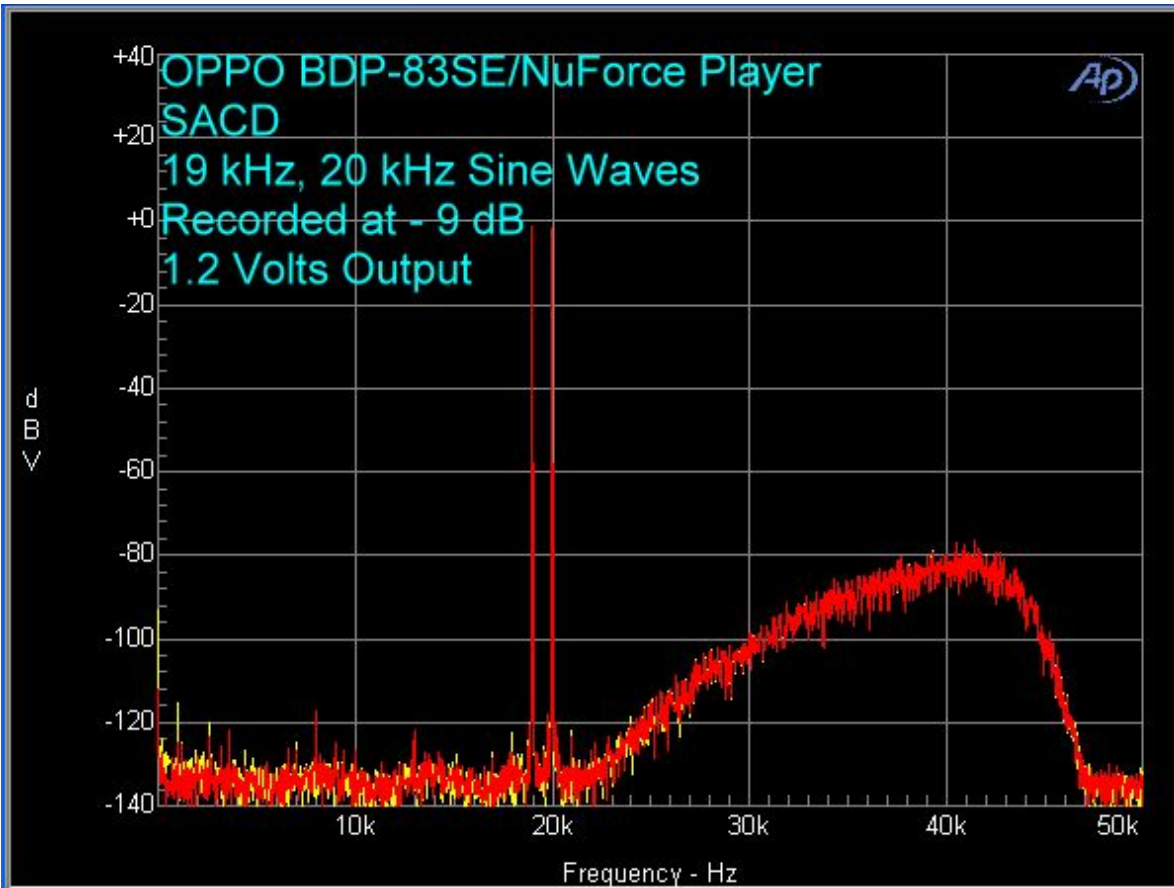




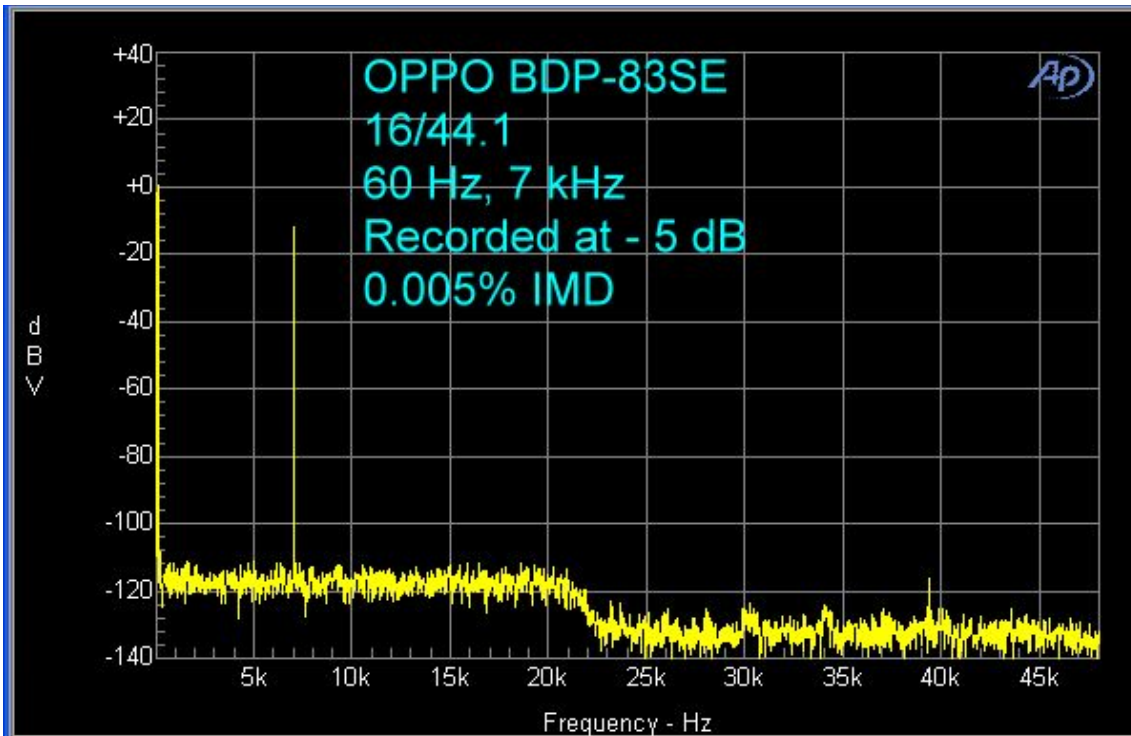


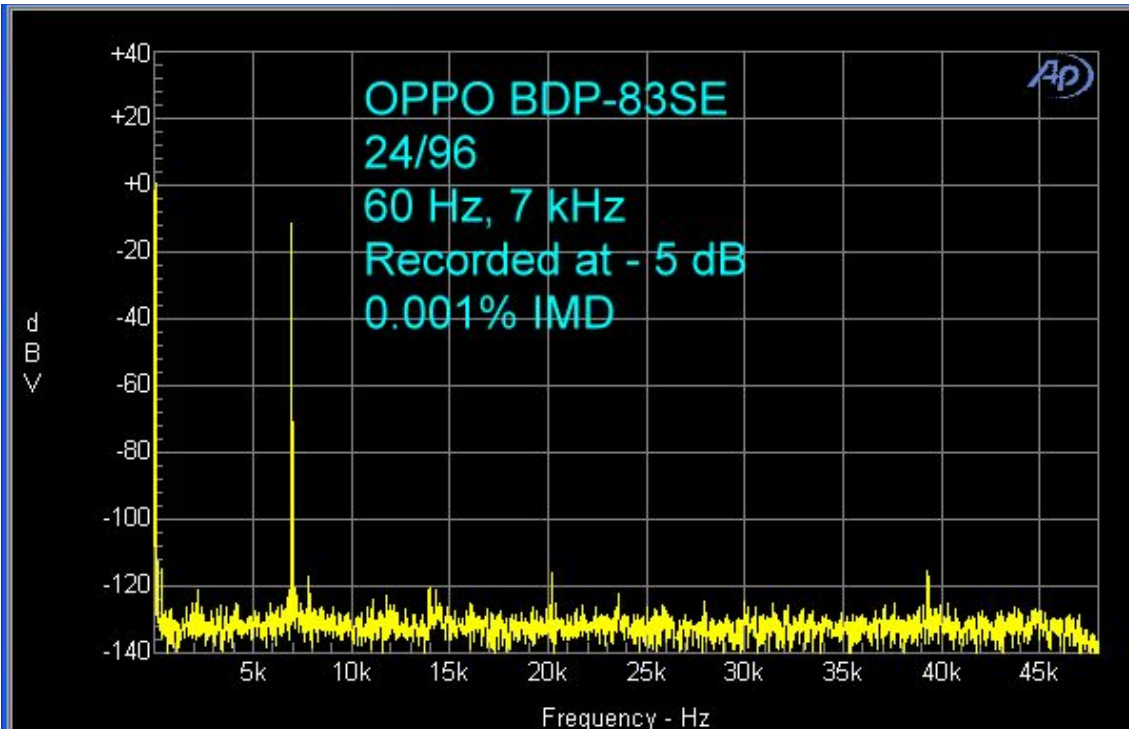
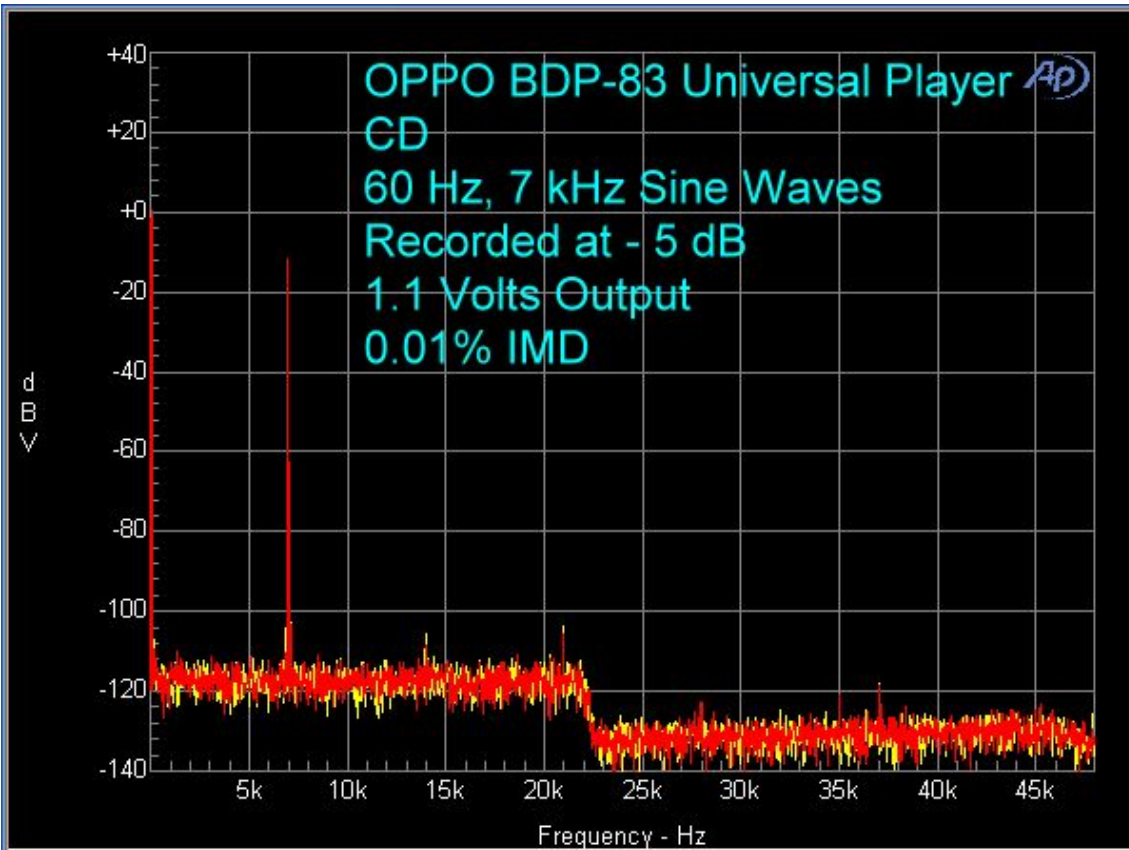
For SACD, both the SE and NuForce perform far better than the SV, but there is a noticeable improvement at the base of the input signal peaks in the NuForce vs. the SE.



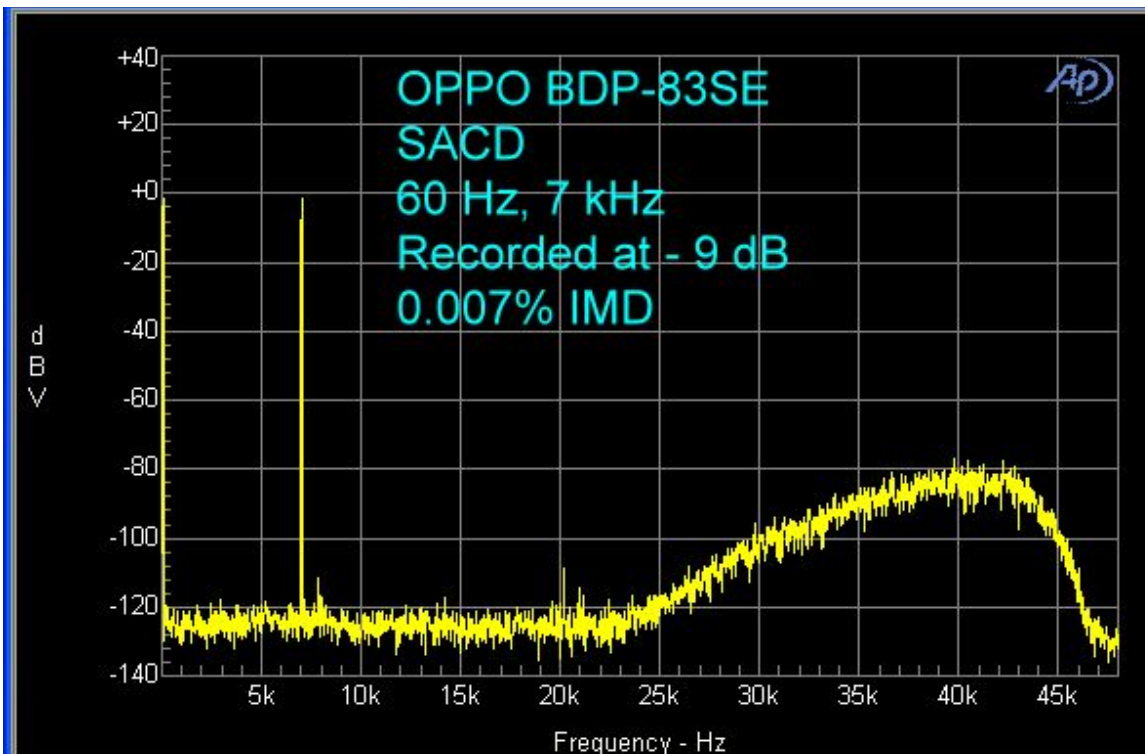
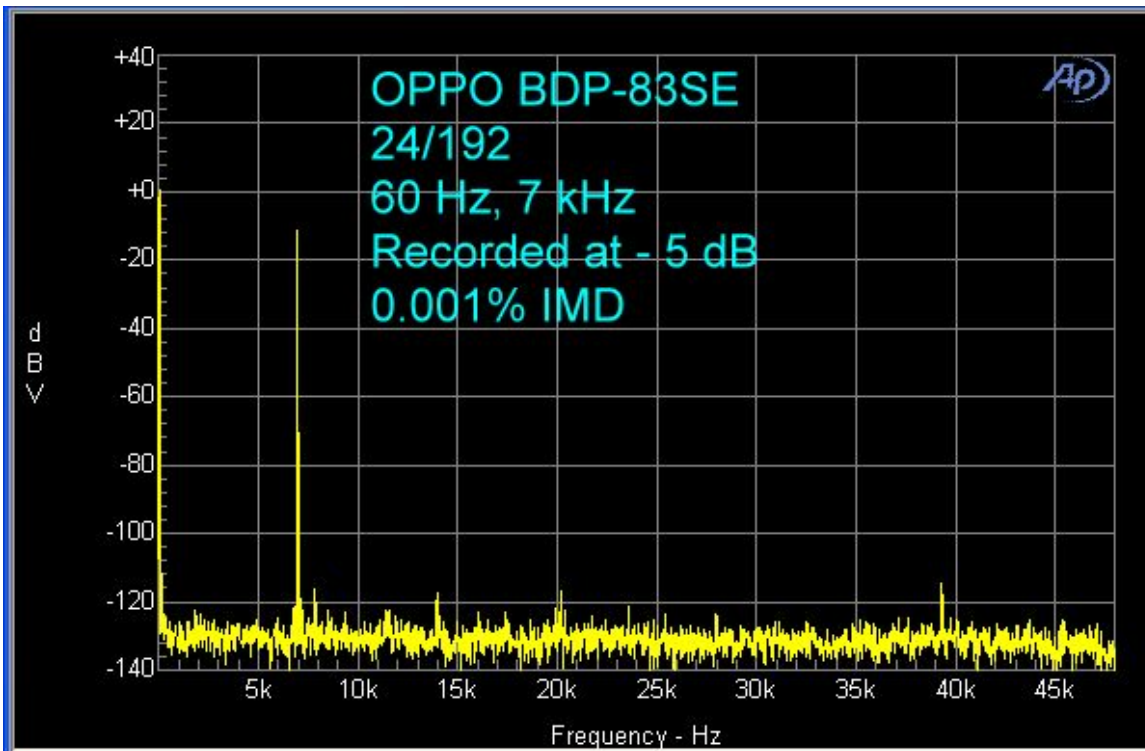


IMD was also extremely low. IMD is calculated by measuring the peaks within 250 Hz on either side of the 7 kHz fundamental, so the value for SACD does not include the noise peaks in the out-of-band region. Nevertheless, IMD for SACD was a bit higher than with the PCM signals (16/44.1, 24/96, 24/192). IMD for the SV was twice as high as with the SE and NuForce versions.





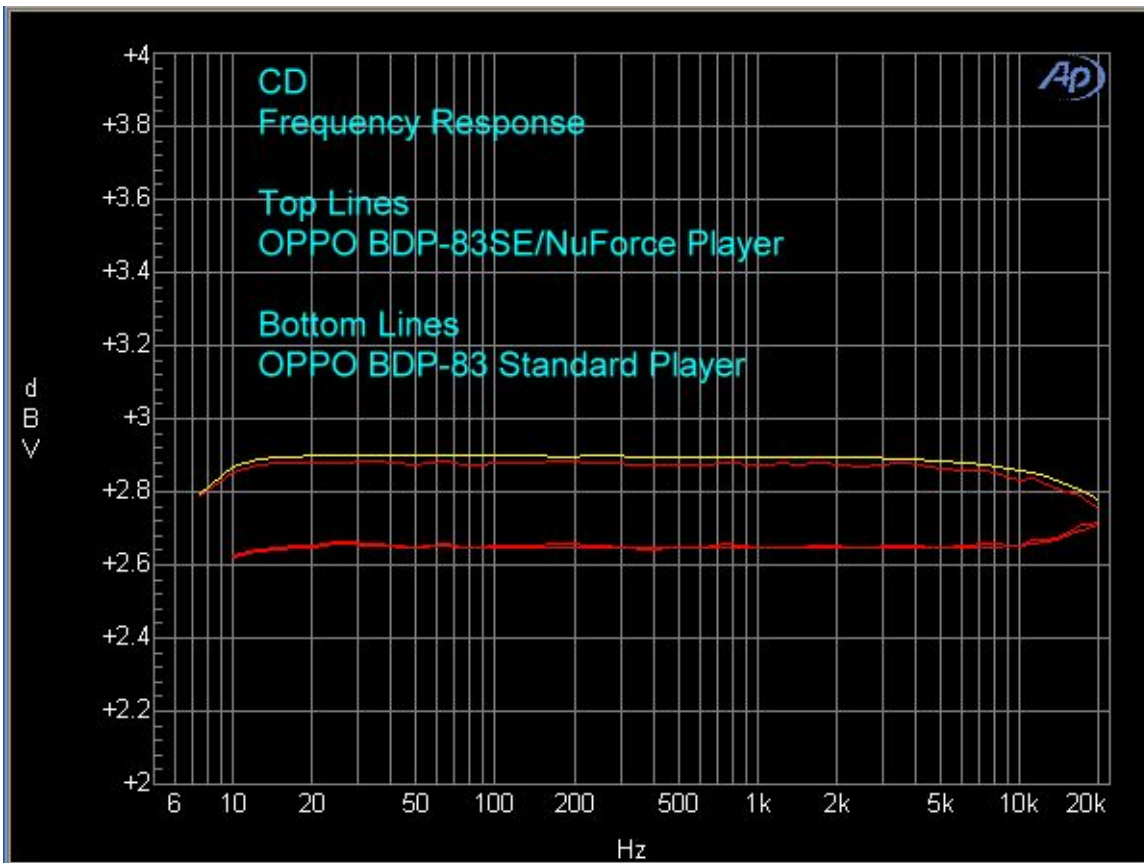
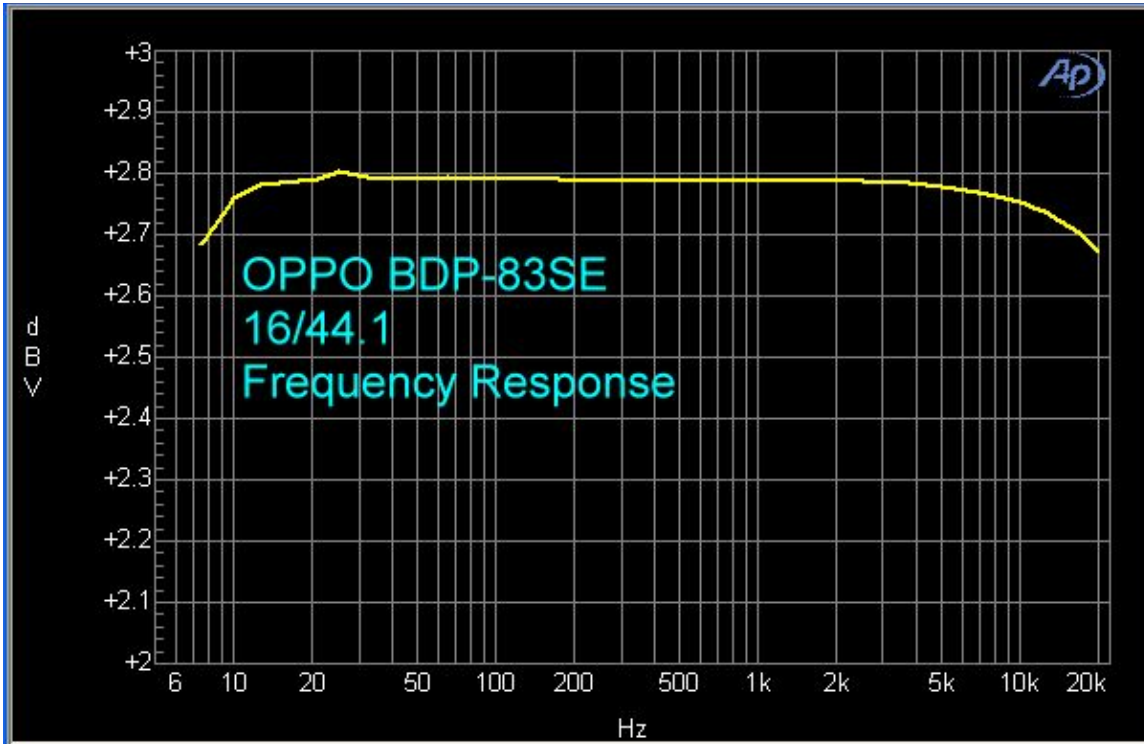


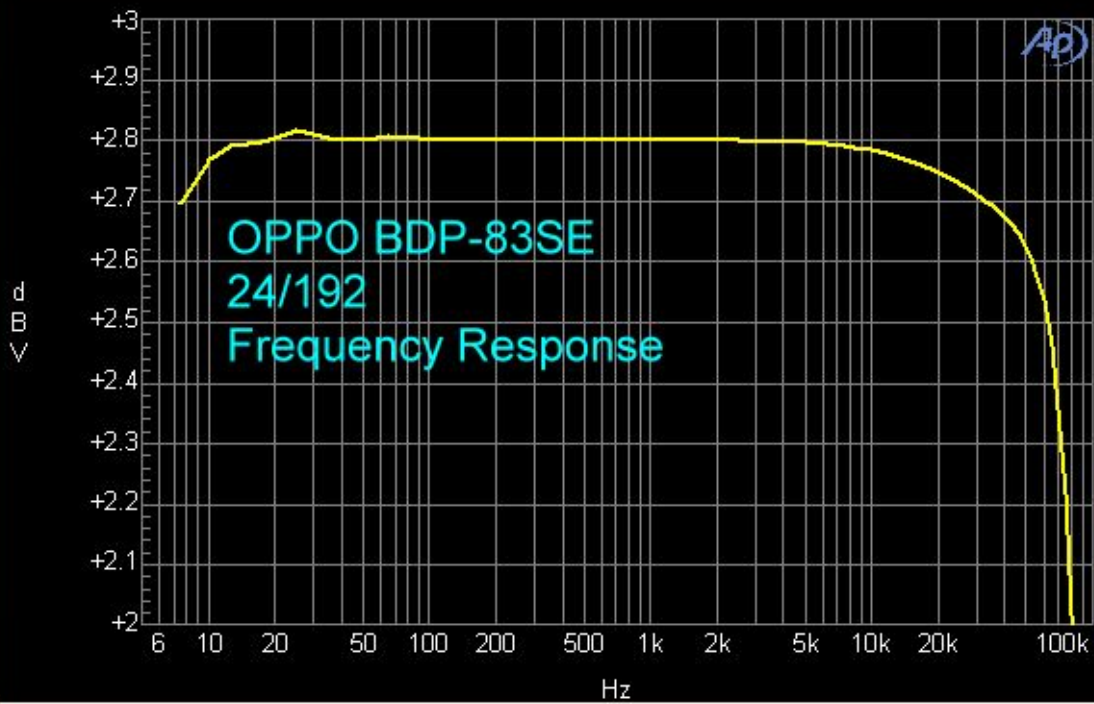
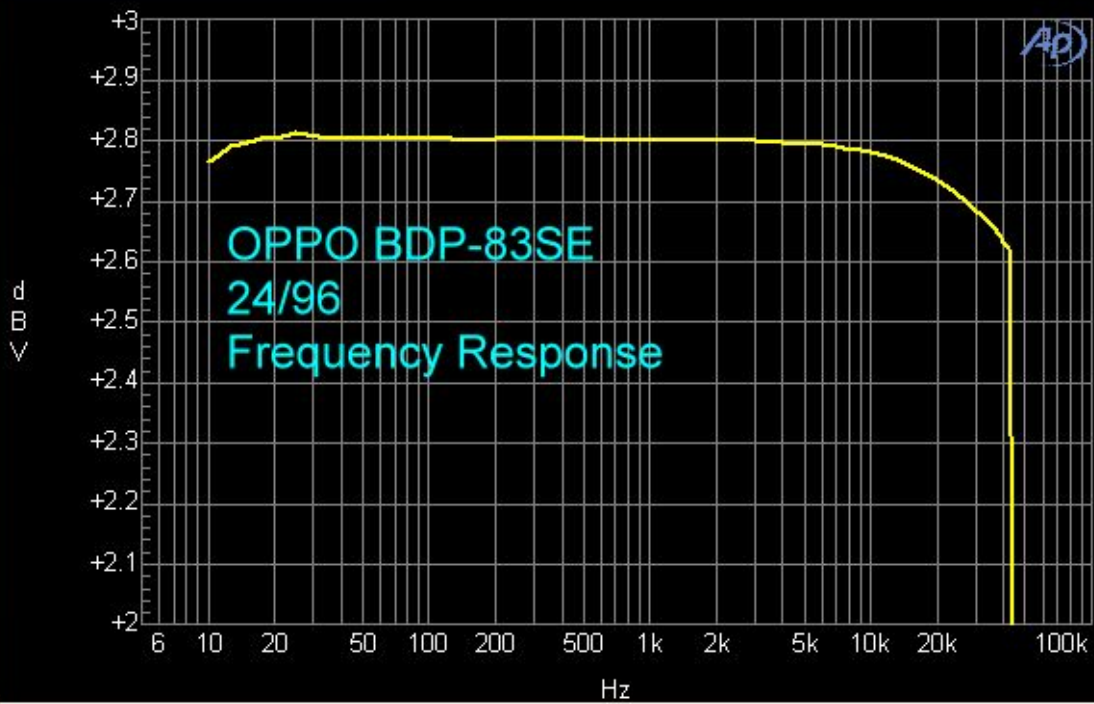


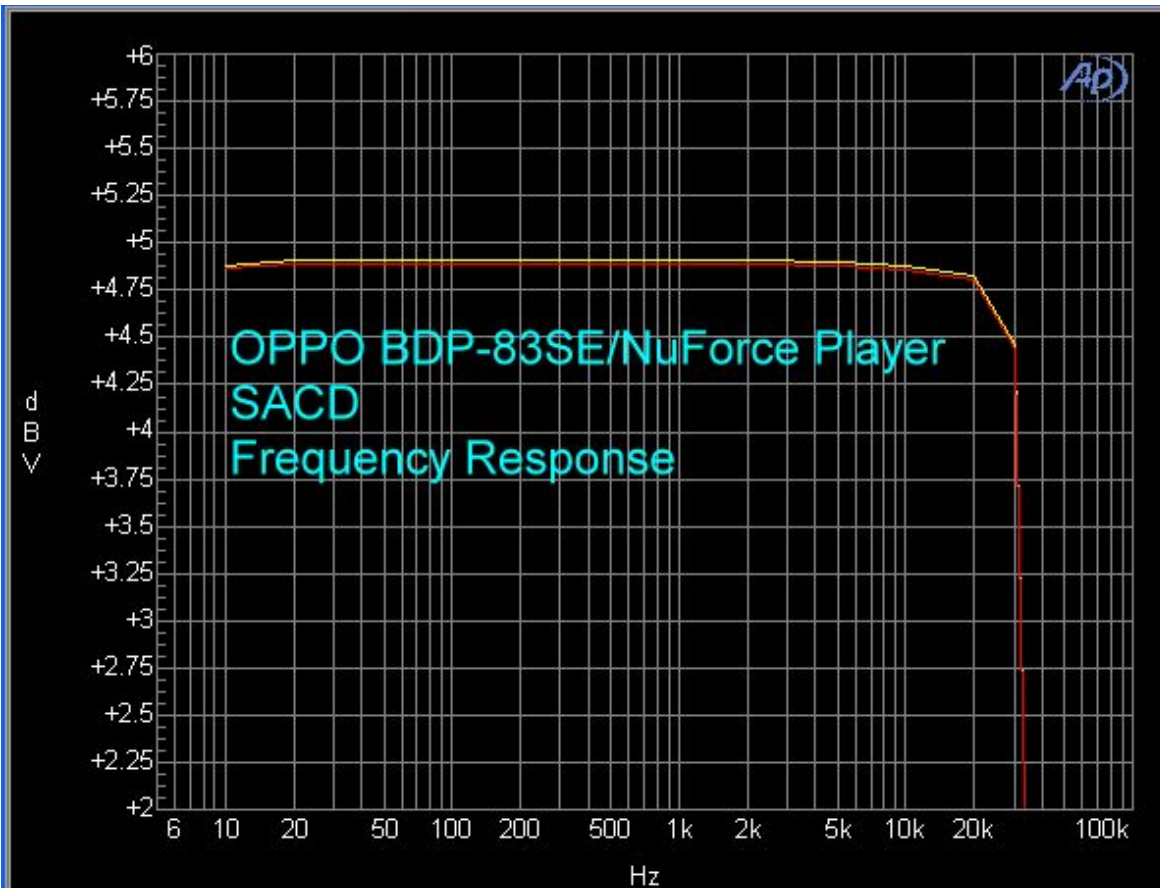
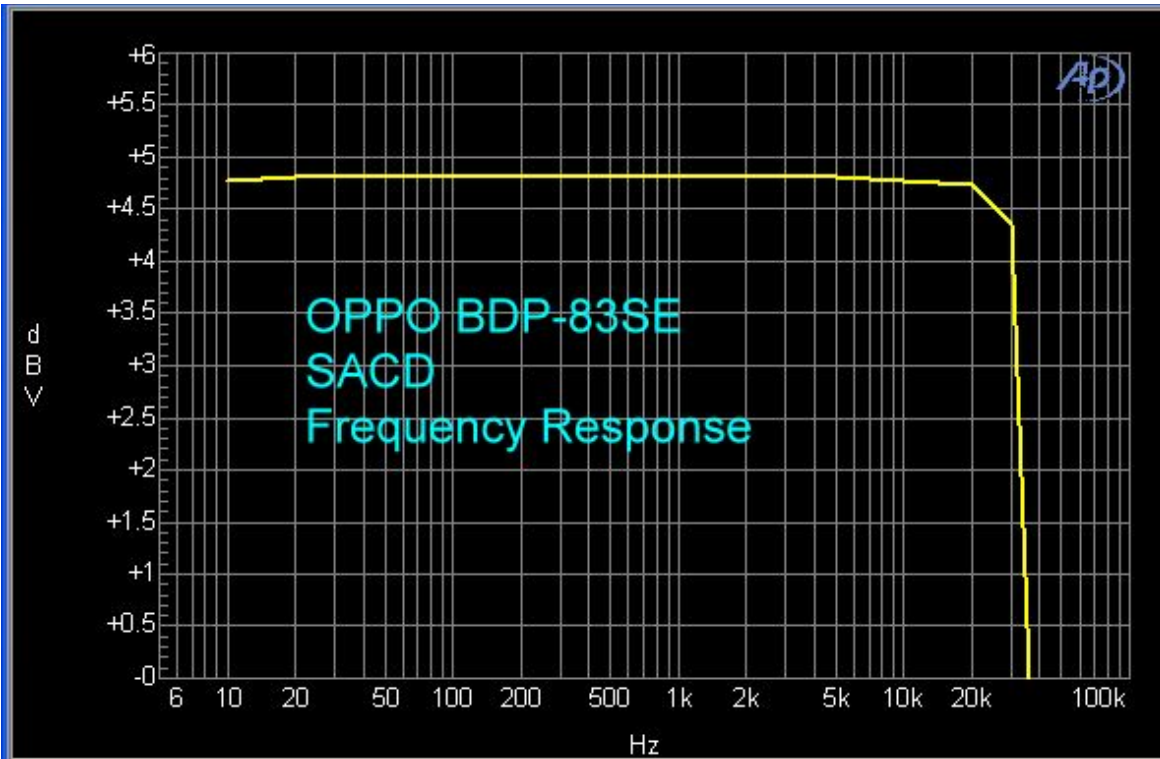
The noise spikes in the above graphs are probably being picked up in the single-ended RCA cables. Going to a balanced output design (XLR) would help to eliminate these (as long as your preamp has true balanced XLR inputs). Maybe the next version?

Frequency response results are shown below. For the Standard Version, the response was down only 0.05 dB at 20 kHz, and 0.2 dB at 50 kHz. The SACD decoding includes a filter above 20 kHz. This reduces the impact of the out-of-band noise, which can interfere with the clarity of the audible

frequencies (“beating” and IM). The NuForce version rolls off similar to the SE, while the SV has a slight rise at the high end of the audible spectrum.



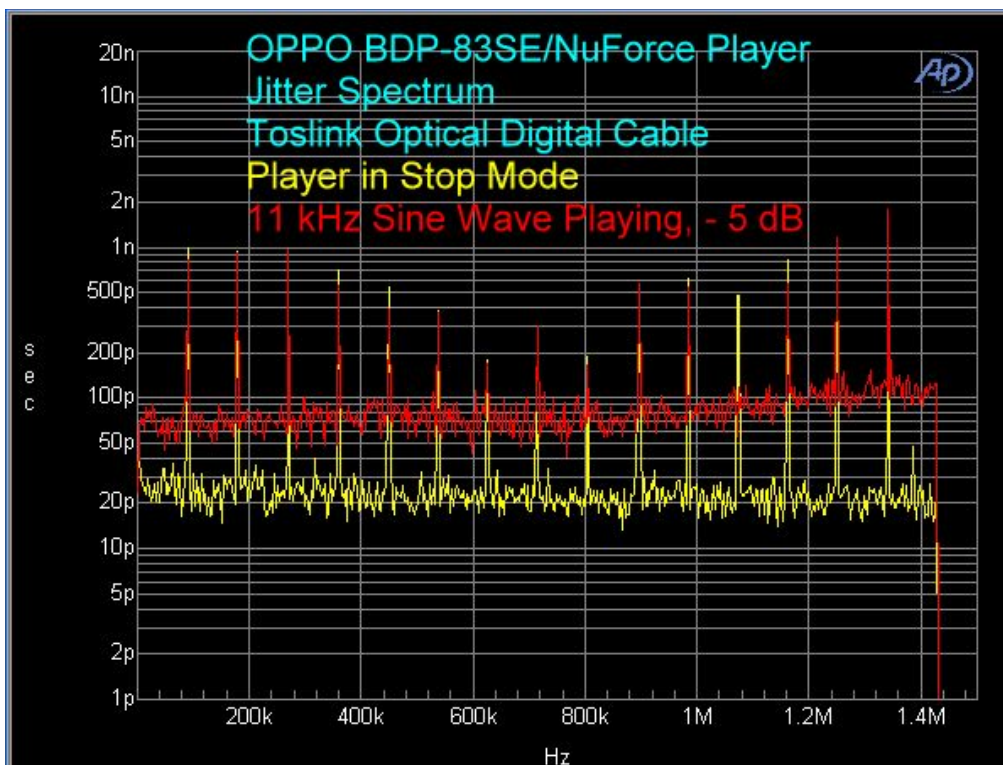
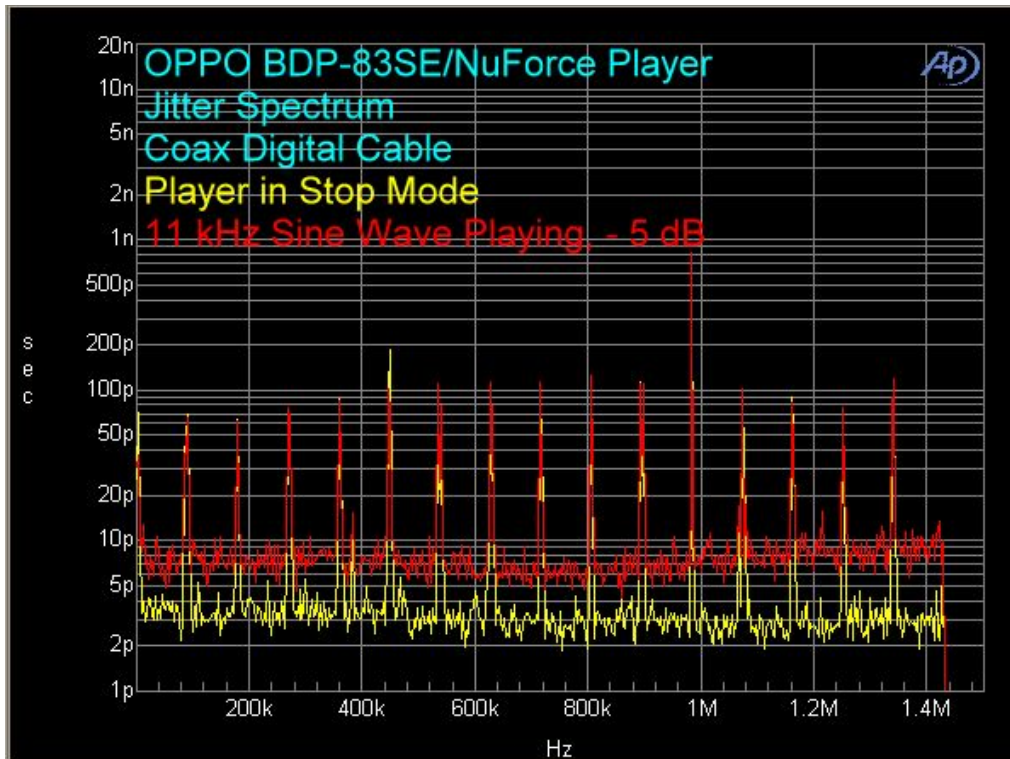


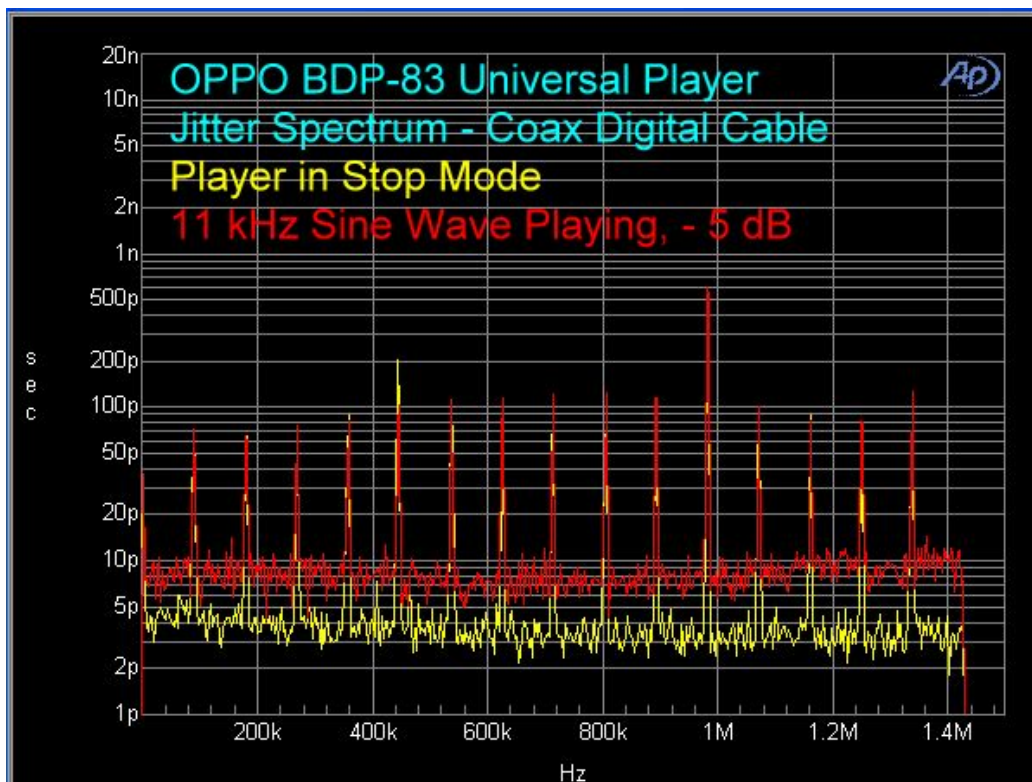


Jitter was very low both in the stopped mode and when playing an 11 kHz test signal. When playing, jitter was between 7 and 10 picoseconds, which is the data-dependent jitter. The peaks are called periodic jitter and are there whether a disc is playing or not. Data-dependent jitter and periodic jitter are both in the category of deterministic jitter. There is also random jitter that is usually due to thermal

noise. Notice the difference between the jitter from the coaxial output and the Toslink output. This should put to rest any question about which output you should use if you have the choice. I have seen this same difference between coax and Toslink in another player of a different brand, the review of which will appear shortly, so it is not something specific to OPPO.

Jitter was slightly lower in the NuForce player than in the standard player.





## Conclusions

OPPO has set another standard with the BDP-83 Special Edition Universal Blu-ray Player, and NuForce has made some measurable improvements with their tweaked version. The analog audio outputs of these two special edition players rival players costing quite a bit more.

Some of you might have difficulty making a decision on which one to purchase. My recommendations are as follows: If you have an entry-level type of surround sound setup, say a \$599 receiver with inexpensive speakers, choose the standard version and play your music through the HDMI connection, or if your receiver does not have HDMI inputs with audio decoding, use the 7.1 analog output on the player. If you have a higher-end setup, such as a \$1,500 receiver and speakers costing several thousand dollars, and the receiver has HDMI inputs with audio decoding, purchase the BDP-83SE and use the HDMI connection, but also use the special stereo analog outputs plugged into a stereo analog input set on the receiver. And, of course, if you have state of the art home theater, obtain the BDP-83SE/Nuforce Edition, connect with HDMI, and also the special stereo analog outputs.

Make no mistake, OPPO is becoming a major force in Blu-ray and audio players. The next generations will be even better than these.