TacT 2.2 XP Dynamic Room Correction Preamplifier

Reinventing the art of the high end

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I hesitate to call the TacT 2.2 XP the "component of the year," since I've recently reviewed two superb sets of components from Krell and Pass Laboratories, and the Krell Evolution series is a breakthrough in conventional analog stereo. So, let me put it differently. The TacT 2.2 XP is one of the few high-end products on the market that can fundamentally change your listening experience as well as solve most listening room and speaker problems. It provides a superb combination of a stereo preamp, equalizer, room equalizer, phase corrector, and digital-to-analog converter with up to 192kHz/24-bit resolution and advanced, highly accurate re-clocking. It now does so with vastly improved computational capability that allows it to measure room and equipment problems from your listening position, and correct frequency response, and phase without the use of a separate computer. And you also can use the TacT 2.2 XP to provide a corrected electronic crossover with virtually any crossover configuration and slope for driving two amplifiers and separate speakers and subwoofers and fully correct both the woofer and main speakers in the same way you can a separate full-range speaker.

In an audio world where tweaking is often mindlessly expensive, relies on technological nonsense, and does more harm than good, the TacT 2.2 XP allows really meaningful adjustment of sound quality and musical performance.

This is not a simple product; it crams an immense amount of technology into a small box. In broad terms, however, you can buy the TacT 2.2 XP in several basic configurations. The first is a purely digital unit that only accepts digital signals, provides 48-bit processing, has five digital inputs with sample rates up to 192kHz/24-bit, and has a digital output for digital amplifiers. The second adds a digital-to-analog output for use with conventional analog amplifiers. The third adds a 192kHz/24-bit, analog-to-digital converter to provide four stereo RCA inputs and one XLR balanced input.

Regardless of which configuration you need and buy, the added computational capability in the TacT 2.2 XP allows it to perform room correction with 0.8Hz resolution by using the display and push-buttons on the front panel without need of a PC or separate software. For many audiophiles the resulting immediate improvements in timbre and detail will be more than enough to make them stop and actually listen to music.

Sooner or later, however, true audiophiles will take advantage of the fact that a PC can be used with the 2.2 XP. The displayed graphs help users design their own optimum EQ curves and take exact control over the TacT's ability to memorize ten user-designed frequency correction or target curves, detect objects in the sound path that may be coloring the signal at the listening position, equalize speaker response, and play around with different crossover configurations. With a PC, you become the on-screen master of all you survey—and more importantly, all you hear.

The TacT 2.2 XP calibration process is relatively straightforward. The 2.2 XP sends a number of impulses to the speakers. The (supplied) calibrated microphone picks up the impulses at the listening position. As TacT puts it,

"both the frequency-domain and the time-domain response can be accurately determined based on the deformation of the resulting pulse. The system then calculates a filter for each speaker, which will give the desired frequency response with the best possible time behavior, and no sacrifice of dynamic range. All processing is done with floating-point precision so that no noise or distortion is generated by the system. The system measures and calibrates the left and right main speakers and one or two subwoofers, so any difference between the left and right channels is also compensated." Try doing that with a 12AX7!

The TacT 2.2 XP also offers another feature that initially I was ready to dismiss. Loudness controls have invariably done more musical harm than good since they were first introduced during the second Buchanan Administration. Accordingly, I wasn't exactly impressed when TacT first advertised that its new room-correction software was the only one "in the world to address the issue that sound perception is both frequency and level dependent. By taking into account your natural hearing characteristics and by adjusting for them dynamically with every 0.1dB change in level, giving you the closest possible approximation of live music in your home."

Well, kill the copywriter and not the product. This is not some half-assed effort to force digital versions of the Fletcher-Munson curves on the technically naïve. It allows the user to make individual adjustments to his or her unit to compensate for the fact that sound perception is both frequency- and level-dependent and to make the tonal balance of music seem closer to the natural balance heard in live music. The downside (or up-) is that you have to do this by ear. It is just the reverse of the time-and-phase-correction procedure. It requires personal judgment and listening to get it right, and for most audiophiles, it won't mean coming close to the exaggerated corrections required at low levels to match Fletcher-Munson. (Remember, the original Fletcher-Munson research occurred at a time when measurement equipment was primitive and when major differences in the results by sex and age did not have to be correlated and applied to a consumer product.)

I can't tell you how you will sound when you finish tailoring to your taste, how you will choose and alter correction curves, how you will set up the dynamic room correction, and whether you will ever make use of the equalizer. I can tell you that the more you work at using the features in the TacT 2.2 XP, the more you and your music will benefit from the result. I also can assure you that even if you do nothing other than run the automatic-correction feature you will get major improvements. I have been doing room and speaker interaction measurements for more than 30 years with steadily more sophisticated equipment, and I can guarantee you from practical experience, that even in the best rooms with the best equipment, the end result is always going to involve glaring problems in response below 350–400Hz. With most equipment, there are also audible problems in the frequency domain at higher frequencies, especially around 3kHz. In the majority of rooms, the combination of modern digital recordings, digital reproduction technology, and steadily improving tweeters produces excess energy in the top two octaves, and most moving-coil cartridges have a peak or rising response in the top octave, as well.

TacT is, of course, not the only firm to succeed at digital room correction. Meridian and Lexicon have also done so, although only in dealing with the lower frequencies. But the TacT 2.2 XP is the only unit I've tested that works at all frequencies, and in my opinion, it does a notably better job of this, even in the bass, than the Meridian and Lexicon. It provides a much large and more precise level of correction, and it really does provide the ability to reproduce accurate timbre at the listening position and prevent bass time-smear.

My only reservation about the TacT's performance is that I don't think it is as transparent in handing analog inputs as the very best analog preamps. Units like the Krell Evolution Two and Pass Labs X0.2 have a level of purity that simply pushes the envelope slightly more in providing analog detail than the combination of A/D and D/A converters in the 2.2XP. But the differences are slight, and analog preamps cannot do speaker correction in frequency, time, or phase. It is a rare recording where you can really hear an analog preamp's superiority over any length of time.

If I have any other serious reservations about the TacT 2.2 XP, they lie in the potential difficulty of getting all of the musical benefits I've touched upon earlier. The TacT manual, to put it bluntly, just sucks in explaining what to do from a practical viewpoint, what nominal curves or settings to start with, and how to listen for the proper result. You can learn how to make the necessary adjustments at a narrow technical level using the instructions, but you then have to fly blind in an area where few audiophiles have experience or know-how.

I'd like to see the unit come with a full set of initial curves and correction adjustments that are each shown in frequency graphs in the manual. I'd like to see some "how to" instructions that cover both how to use a PC to set the TacT up and how to listen. TacT hasn't

Specs & Pricing

TacT AUDIO
201 Gates Road, Unit G
Little Ferry New Jersey 07643
(201) 440-9300
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Inputs: Five digital with sample rates up to 192kHz/24-bit; balanced and single-ended analog inputs
Features: Digitally controlled analog output level; digital crossovers for subwoofer(s); high-quality re-clocking on all inputs; triple-stage power supply with separate grounds; 192kHz upsampler at inputs; integrated measurement system with 0.4Hz resolution and calibrated measurement microphone; time-delay correction with 10-microsecond resolution; optional A/D converter with 192kHz/24 bit
Dimensions: 17.1" x 3.5" x 14.5"
Weight: 16 lbs.
Prices: TacT 2.2 XP base unit: $4490; ADC module: $549; DAC module: $449

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done this (yet). Accordingly, all I can suggest you do is sit down, create a set of different correction curves, start listening to your favorite music, and simply keep adjusting for the best illusion of realism. Usually, you will need a minimum of bass correction and a wide variety of upper-octave roll-offs. After a couple of hours, you'll have curves for favorite records, favorite CDs, problem CDs, and record-noise or tape-hiss problems if you're still heavily into vinyl. Then, spend some time in a concert hall, go back, and adjust again. It's amazing what just a little adjustment can do to create an added sense of realism, and just how much getting timbre right really matters.

As for dynamic room correction, I'd trot out the Fletcher-Munson curves and use about one-third the correction in the bass and one-quarter in the treble. I haven't come across anyone with anything approximating normal hearing who hasn't found that a "loudness" correction based on the original results of Fletcher-Munson grossly over-corrects. If you keep adjustments moderate, you are going to hear a more lifelike and realistic set of dynamics with far more of a sense of "being there." I should note that TacT does provide one potential source of help for the novice. It is creating a user database where other audiophiles can send their target and dynamic correction curves and suggestions to TacT—and you can try them out. This feature wasn't working when I wrote this review, and it is not clear how much detail or description will come with another audiophile's ideas. Moreover, if you do download someone else's curves, loading a report file will overwrite the existing content data, including the target curve, dynamic target curves, CRO, measurements, and correction-filter buffers. All in all, TacT would be much better advised, as noted, to give you a well-documented set of starting curves.

To sum up, the 2.2 XP is not the perfect component in terms of ultimate analog transparency with analog signal inputs. You also have to be literate and moderately patient, have grade-school computer skills, and need a pair of ears and some musical taste to use it. But damn! I don't know another component that offers anything close to this level of performance at the price, does so much to improve the music, and allows you to play with the sound in ways that can be so constructive. The TacT 2.2 XP isn't just an outstanding piece of high-end equipment; it is one hell of a lot of fun!

Highly recommended, and in many listening rooms, essential. ***TAS***