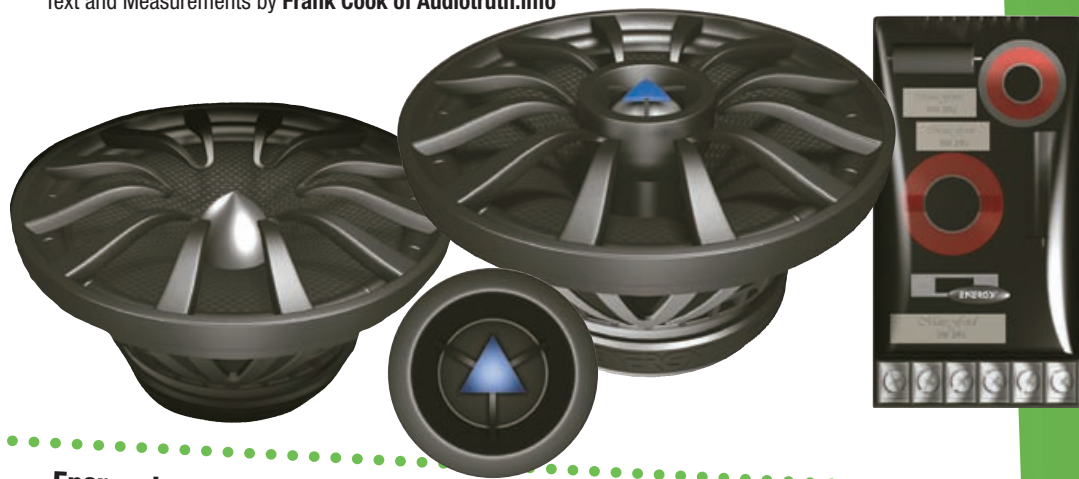


# Energy ENC525CV Speaker System

Text and Measurements by Frank Cook of Audiotruth.info

CORRECTED BY  
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▶ The Energy ENC525CVs offer high-quality parts, truly-engineered crossovers (bandaids), sexy looks, excellent performance and great price.

Energy does home audio, right? Well, not just home anymore! Energy Loudspeakers is making a transition into the car audio marketplace, bringing more than 30 years of engineering and manufacturing excellence with them.

**E**nergy is best known for its legendary Pro22 Series (1982). This series was an absolute breakthrough in sonic performance. Featuring the “million-dollar” Dual Hyperdome Tweeter, the Pro22 Series was engineered to better handle high and middle frequencies while eliminating resonance. Later that year, the Energy 22 was selected to be the Reference model for the NRC and the CBC.

Since those days, there has been a list of equally impressive contributions to the industry. But perhaps their biggest contribution will occur in the car audio segment. While Energy knows how to make great-sounding speakers, they also possess the manufacturing wherewithal to bring advanced components and features to market at price points lower than what this segment has been delivering. The question is will they? Read on as we reveal our findings on the new Energy ENC525CV speaker system.

## OUT OF THE BOX

Wow! Just as I thought: Energy is going to change everything! Where to start? The basket is a hot-looking, CNC-machined cast aluminum type. The magnet is a standard affair; however, it's capped with polished plates reflective enough to clearly see your own face in. The surround is a patented ribbed elliptical variant, which is well reputed for improving driver QL losses, longevity and overall sonic attributes. The spider is

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a progressive, woven-fibre type. The mid-range cone is a woven glass type. All of these components add up to only one thing – high-end potential and we haven't even mentioned the tweeters and passive crossovers.

The tweeter is a classic silk dome variant encased in a phase-correcting mount. But the best aspect of the tweeter and perhaps this whole system is that the tweeters are ‘convertible,’ which means that they can be mounted coaxially (at the center of the mid-range) or separately, allowing for increased optimization of frequency and phase response. The convertible aspect of the ENC525CVs (hence the CV) extend beyond just tweeter placement, but also include a swappable phase plug (when the tweeter isn't coaxially implemented) and a set of metal 6- x 8-inch mounting adapter plates for the mid-bass section, facilitating a wider variety of OEM installations.

The passive crossovers are stately and straightforward-looking as well, and possess extremely high-voltage and brand name components. However, a crossover's job isn't to look pretty – it's to accurately separate frequencies between individual drivers, while preserving or correcting their phase qualities. In this light, the crossover is often referred to as the ‘band-aid.’

While it looks like Energy has implemented all the right performance parts, what's more important is the engineering and quality control at the manufacturing plant. Let's see and hear how these newcomers add up. >>

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## GETTING BENCHED

Measuring an individual loudspeaker is already a difficult task, so naturally measuring loudspeaker systems is an even more difficult challenge. Couple these factors with the enormous variations in automotive environments and the task may seem impossible. Thankfully, there are a number of objective and subjective markers we can use as reference points.

## OBJECTIVE MEASUREMENT

Within the objective lab-based domain, there are fundamental electrical and mechanical requirements of a loudspeaker that we can measure which will provide us with insight to the likely performance of a product: rub and buzz testing, impedance and phase qualities, cone bias, cone signal distortions and overall frequency response. All of the following measurements were made at 71-degree Fahrenheit @ 64% humidity, with Smith and Larson's Woofer Tester Pro and Audiomatica's Clio Win 7 system

### SEE FIG:1

In terms of rub and buzz, the Energy ENC525CVs received a clean bill of health with the overall impedances (red) showing as relatively flat, easy load for an amplifier to manage. The phase qualities (blue) were predictable, non-erratic and well managed at the crossover point between the mid-bass and tweeter. From these same measurements we were able to determine the free air resonance and total electro-mechanical qualities of the tweeters and mid-bass drivers:

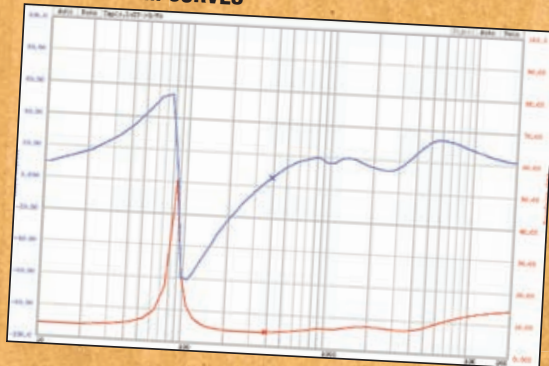
### WOOFERS:

$F_s = 875$        $H_z Q_{ts} = 0.668$

### TWEETERS:

$F_s = 2,004$        $H_z Q_{ts} = 1.39$

FIG:1 SYSTEM CURVES



The woofer qualities outputted manageable results; however, the tweeters' overtly high  $Q_{tc}$  of 1.39 is almost double of an idealistic outcome, and this occurrence may manifest itself in the overemphasis of certain frequencies.

### SEE FIG:2

In terms of driver biasing, we discovered that both the mid-ranges and tweeters were slightly biased to the rear, but only to a minor extent, which is not uncommon in car audio offerings; however, such occurrences may lead to signal colourations and timing errors.

In terms of THD, the Energy ENC525CVs performed excellently at 1 Watt of input. The graph above visually depicts both even and odd harmonic distortions, revealing them all to be well dampened to -50dB with the majority occurring below -70dB: not bad at all!

### SEE FIG:3

Ultimately, we needed to gain an idea of how all of these qualities were going to affect frequency response. To acquire such data, we employed a quasi-anechoic technique. The graph above depicts three measurements: mid-bass (blue), tweeter (red) and combined (green) while interconnected to the supplied passive crossover. The overall response looks quite typical, with the crossover point well defined and the frequency response mostly linear above and below 1.5KHz, with the transition in energy balanced in

FIG:2 SINUSOIDAL

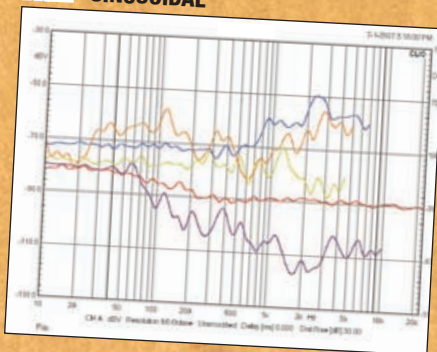
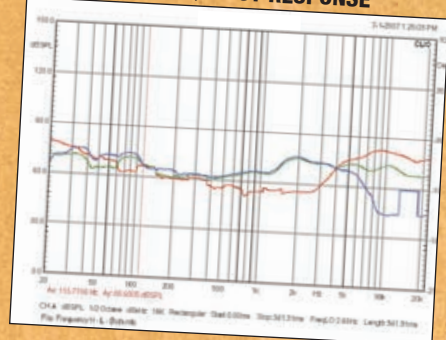


FIG:3 MLS - FREQUENCY RESPONSE



# ENERGY ENC525CV SPEAKER SYSTEM

such a manner that we believe that most individuals will find sonically pleasing. On the whole, 'typical' is good, as 'typical' in the case of the Energy ENC525CVs is representative of what a frequency response should look like from a quality (auto sound) speaker system. Objectively speaking, the Energy ENC525CVs are solid performers. When one considers their price they're awesome! I could hardly wait to get these babies off my bench and into my sound lab...

## SUBJECTIVE MEASUREMENT

I was extremely interested in the performance of the ENC525CVs and selected music that I listen to with frequency. Don't laugh: Michael Jackson – Smooth Criminal; Lindsay Lohan – Rumors; Limp Bizkit – Behind Blue Eyes. The production level on each of these tracks is quite good and the frequency spectrums are wide and dig deep.

On Smooth Criminal, the intro had great sonic height and width with the heartbeats pulsing. The sound on Jackson's breath was balanced in amplitude and sounded tonally correct. The strings entered the stage as intended. The stage was set well! The chorus entered and remained controlled and composed and had correct impact. The body,

**"The Energy ENC525CVs are the best component package I've ever heard in this price range."**

at times, exhibited signal compression and cut the complex bass harmonics short. The tweeters seemed a little splashy but it was nothing an EQ couldn't sort out.

During Rumors, the intro possessed tight upper bass response, the intro vocals were good with just a little extra presence and the center image was spot on and the vocal 'effects' were clearly discernable as being such. The chorus was buoyant and minimally compressed and transferred the emotion intended. The body seemed like it always desired more bass, but I never felt like I was being jipped – I enjoyed the song! The tweeter, however, showed to be a little bright on this track as well.

In Behind Blue Eyes, which starts with a deep omnipresent bass track, which is wide-panned left and right, the Energy ENC525CVs did a fine job at translating the upper mid-bass section (150-320Hz). The lower octaves were of course

missing, as the C525CVs possess a 5.25-inch bass driver. The vocals were properly placed and clear. During the chorus, a buoyant synergy occurred and the speaker system became somewhat transparent for a time, elevating my listening experience. The chanting effect track was awesome and quite timely and the effects sounded very liquid! On the whole, I enjoyed the Energy speakers with this track the most; however, the tweeters were sizzling at times.

## REVIEW SUMMARY

Subjectively speaking, the Energy ENC525CVs possess musical attributes worthy of consideration, especially when you consider their aggressive price. Just as I suspected, the Energy ENC525CVs have the potential to become category killers. As such, this could change everything – higher quality speaker systems for low money – I'm down with that. Aren't you?



## CONCLUSION

The Energy ENC525CVs offer high-quality parts, truly engineered crossovers (band-aids), sexy looks, excellent performance and great price! At their depicted low MSRP, it's truly hard for me to make a fair complaint, but the tweeters do suffer from electrical ring, causing some unwanted over-emphasis between 3-6kHz. Then again, at their price it's almost wrong of me to mention it and the crossovers allow for selectable tweeter settings (0dB, -3dB and -6dB) for those who may find the sound a little too bright. The Energy ENC525CVs are the best component package I've ever heard in this price range. **PAS**



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