

Pick-Attack Transient Analysis: Fishman Fluence Modern vs. Five Passive/Active Pickups

Summary

This study measures pick-attack transient content across five bridge-pickup comparison videos, each pitting Fishman Fluence Modern (Voice 1 and Voice 2) against a different pickup. All five videos use the same guitarist, same riffs, same amp profiles (clean: EVH 5150 III, distorted: Peavey 5150, both via Kemper), and the same video structure. This let every comparison be processed identically.

Pickups tested against Fluence Modern:

Pickup	Type	Magnet	DC Resistance
DiMarzio Titan	Passive	Ceramic	11.07 k Ω
DiMarzio Crunch Lab	Passive	Ceramic	11.03 k Ω
DiMarzio Tone Zone	Passive	Alnico 5	17.31 k Ω
Seymour Duncan JB SH-4	Passive	Alnico 5	16.60 k Ω
EMG 81	Active	Ceramic	—

Method

1. Each video’s audio was split into 12 riff cycles: 6 on the clean channel, 6 on the distorted channel.
2. Note onsets (pick attacks) were detected independently for each pickup, then matched across pickups to the same riff position ($\pm 60\text{ms}$ tolerance), so only genuinely corresponding notes were compared.
3. For each matched onset, the first 10ms after attack (“transient window”) was isolated and its frequency content measured.
4. Results below use only the **clean channel** (the distorted channel’s own harmonic generation swamps pickup-level differences — see note at end).
5. Sample size: 301–324 matched onsets per comparison.

Result 1: High-Frequency Content Above 3kHz (Transient Window)

Comparison	Voice 1	Voice 2	Other Pickup	Winner
Titan	3.86%	2.69%	5.67%	Titan
Crunch Lab	3.58%	2.57%	6.50%	Crunch Lab
Tone Zone	3.32%	2.46%	5.05%	Tone Zone
Duncan JB	3.99%	2.73%	0.68%	Fluence
EMG 81	3.70%	2.69%	4.23%	EMG 81

4 of 5 pickups beat Fluence here. Duncan JB is the exception. Magnet type does not explain this split — Tone Zone (alnico) behaves like the ceramics; JB (also alnico) does not. No single spec explains why JB is the outlier.

Result 2: Low-Frequency Content, 80–250Hz Band (Transient Window)

Comparison	Voice 1	Voice 2	Other Pickup	Other vs. Best Fluence
Titan	15.8%	21.0%	21.0%	tied
Crunch Lab	16.9%	20.9%	30.9%	+10.0 pts
Tone Zone	16.3%	20.9%	28.2%	+7.3 pts
Duncan JB	16.3%	20.9%	29.0%	+8.2 pts
EMG 81	16.3%	21.4%	17.2%	−4.2 pts

All 4 passive pickups matched or exceeded Fluence here. EMG 81 — the only other active pickup tested — is the sole one that came in lower. This is the cleanest, most consistent result in the study: passives carry more (or equal) low-end pick-attack energy than Fluence; the one active competitor does not.

Result 3: Full Frequency Breakdown (Clean Channel)

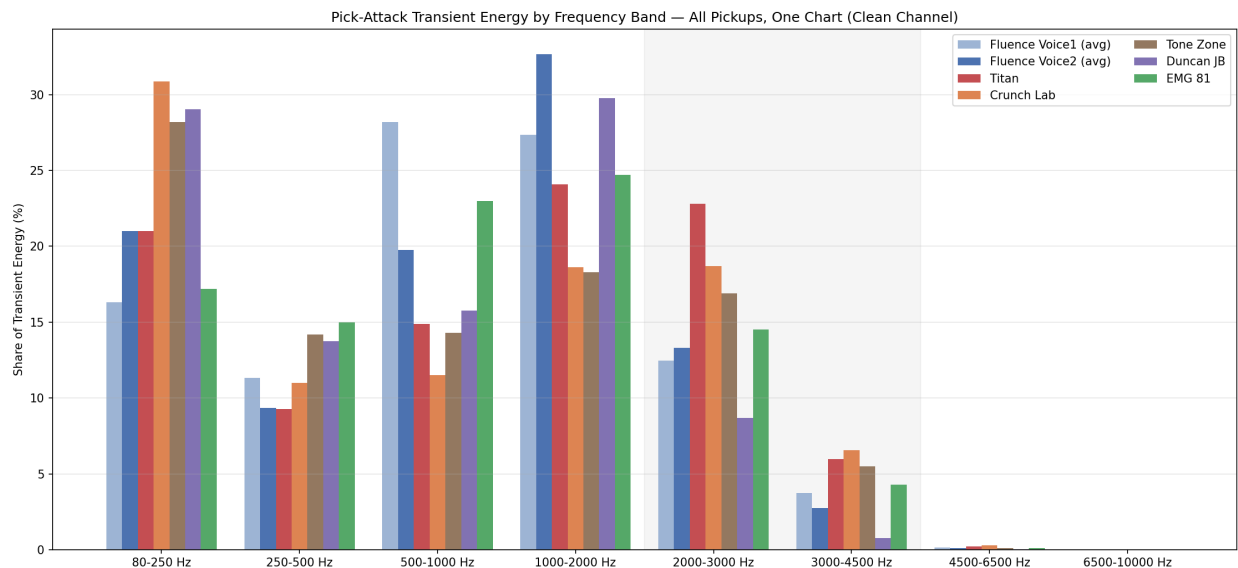


Figure 1: Master frequency comparison

Fluence Voice 1 and Voice 2 are averaged across all five sessions (their numbers were consistent video-to-video) so each pickup appears once rather than five times. Shaded band = 2000–4500Hz, the region where 4 of 5 “other” pickups lead.

Titan

Band (Hz)	Voice1	Voice2	Titan
80–250	15.8	21.0	21.0
250–500	11.5	9.0	9.3
500–1000	28.8	20.3	14.9
1000–2000	27.5	33.3	24.1
2000–3000	12.2	12.7	22.8
3000–4500	3.8	2.7	6.0

Crunch Lab

Band (Hz)	Voice1	Voice2	Crunch Lab
80–250	16.9	20.9	30.9
250–500	11.0	9.5	11.0
500–1000	27.6	19.9	11.5
1000–2000	27.4	32.5	18.6
2000–3000	12.6	13.4	18.7
3000–4500	3.8	2.7	6.6

Tone Zone

Band (Hz)	Voice1	Voice2	Tone Zone
80–250	16.3	20.9	28.2
250–500	11.2	9.4	14.2
500–1000	28.0	19.5	14.3
1000–2000	27.5	33.1	18.3
2000–3000	12.9	13.3	16.9
3000–4500	3.5	2.6	5.5

Duncan JB

Band (Hz)	Voice1	Voice2	Duncan JB
80–250	16.3	20.9	29.0
250–500	11.3	8.8	13.8
500–1000	28.2	19.5	15.8
1000–2000	27.1	33.3	29.8
2000–3000	12.6	13.5	8.7
3000–4500	3.9	2.8	0.8

EMG 81

Band (Hz)	Voice1	Voice2	EMG 81
80–250	16.3	21.4	17.2
250–500	11.7	10.0	15.0
500–1000	28.3	19.6	23.0
1000–2000	27.3	31.3	24.7
2000–3000	12.0	13.8	14.5
3000–4500	3.7	2.8	4.3

No pickup tested — Fluence included — puts meaningful energy above 4500Hz. Guitar pick-attack transients simply don't live up there, even on the brightest pickup.

Result 4: Clean vs. Distorted Channel

Comparison	Clean: Other vs. Fluence	Distorted: Other vs. Fluence
Titan	+1.81 pts	−2.79 pts
Crunch Lab	+2.92 pts	−2.32 pts
Tone Zone	+1.73 pts	−2.34 pts
Duncan JB	−3.31 pts	+1.20 pts
EMG 81	+0.53 pts	+0.09 pts

Whatever advantage a pickup has on the clean channel shrinks or reverses once distortion is added, in every comparison. Distortion adds its own harmonic content that overrides pickup-level transient differences.

What Each Pickup’s Frequency Profile Says About Its Character

DiMarzio Titan — Energy concentrated narrowly at 2000–3000Hz. Reads as a focused upper-midrange “snap,” not a broad brightness boost.

DiMarzio Crunch Lab — Highest low-end share of the ceramic group (30.9% at 80–250Hz) plus the highest 3000–4500Hz share (6.6%). Reads as both bass-forward and edgy — thick and cutting at the same time.

DiMarzio Tone Zone — Similar shape to Crunch Lab (bass-heavy, some top-end edge) despite the alnico magnet. Reads as a hot, aggressive pickup regardless of magnet chemistry.

Seymour Duncan JB — Lowest 2000–4500Hz share of all five, but strong 80–1000Hz and 1000–2000Hz content. Reads as thick and smooth, not sharp — consistent with its long-standing reputation as a non-icepick, blues/rock-friendly high-output humbucker.

EMG 81 — The only pickup, active or passive, that trails Fluence Voice 2 in the bass band. Reads as tighter and less bass-heavy at the attack than every passive tested, active or not.

Fishman Fluence Modern (both voices) — Consistently the most energy-concentrated in the 500–2000Hz “body” range across all five comparisons, with the least 2000–4500Hz content of any pickup except JB. Reads as a rounder, more midrange-centered attack than most of its passive competition.

Caveats

- One guitarist, one riff set, one amp profile (Kemper capture) per video.
- Sample sizes are 301–324 matched onsets per comparison — solid, but not exhaustive.
- Onset-matching tolerance is ± 60 ms; a small fraction of matches could pair adjacent rather than identical notes.
- Results reflect this specific recording setup and are not a guarantee of how these pickups behave in other guitars, amps, or hands.